Mathematics

Kang, Byung Gyun / 강병균

Education 1987: Ph.D., University of Iowa
1982: M.S., Seoul National University
1980: B.S., Seoul National University

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Major Research Achievements

- "Anti-Archimedean rings and power series rings," Comm. Algebra, 26(10), 3223-3238, 1998.
- "Formally integrally closed domains and the rings R((X)) and R{{X}}," J. Algebra, Vol.200, 1998.
- "On Mocker's question, "J. Algebra, Vol.216, 481-510, 1999.

Research Interests

- Commutative Rings and Algebra

Research Keywords

Commutative algebra, Commutative ring, Spectrum, Power series ring, Valuation theory, Completion, Multiplicative ideal theory

Kwon, YongHoon / 권용훈

Education 1986: Ph.D., Purdue University
1981: M.S., Seoul National University
1978: B.S., Seoul National University

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Major Research Achievements

- Parameter Estimation Approach to the Free Boundary for the Pricing of an American Call Option
- Estimation of Local Volatilities in a Generalized Black-Scholes Model
- A Flexible Inverse Laplace Transform Algorithm and Its Application
- A Collocation

Research Interests

- Numerical analysis on partial differential equations
- The Black-Sholes equations
- Parameter estimation

Research Keywords

Numerical analysis, Partial differential equations, The Black-Sholes equations, American options, Parameter estimation

Kweon, Jae Ryong / 권재룡

Education 1995: Ph.D., University of Maryland at College Park
1986: M.S., Kyungpook National University
1984: B.S., Kyungpook National University

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Major Research Achievements

- "Regularity of Solutions for the Navier-Stokes system of incompressible flows on a polygon," J. Differential Equations, 235, 166-198, 2007.
- "Regularity of solutions to the Navier-Stokes system for compressible flows on a polygon," SIAM J. Math. Anal.

Research Interests

- Compressible or incompressible flows on polygonal or polyhedral regions
  - regularities, corner or edge singularities
  - discontinuities, singularly perturbed problems
- Computational fluid dynamics
  - Finite element methods: stability, error

Research Keywords

Compressible viscous flows, Corner singularity and regularity, Adaptive meshrefinement, Finite element analysis

Kim, Kang-Tae / 김강태

Education 1988: Ph.D., University of California at Los Angeles
1980: M.S., Seoul National University
1978: B.S., Seoul National University

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Major Research Achievements

- Semicontinuity theorem in complex and Riemannian geometry
- The Bidisc theorem
- Characterization of CR manifolds with CR contraction
- Generalization of the Forelli theory

Research Interests

- Complex differential geometry
- Several complex variables

Research Keywords

Manifolds, Uniformization, Holomorphic mapping, Bergman kernel, Curvature

Kim, Kwang Ik / 김광익

Education 1984: Ph.D., State University of New York at Stony Brook
1979: M.S., Seoul National University
1974: B.S., Seoul National University

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Major Research Achievements

- A Study on the Autonomous Land Vehicle (ALV)
- SPECT (Single Photon Computerized Tomography)
- Wave Propagation in a Harbor
- Ecological and Epidemic Models
- Maxwell Equations and Eddy Current Problems
- Financial Mathematics (Jump-Diffusion Mode

Research Interests

- Applied and Computational Mathematics: SPECT, ALV, Mathematical Modeling (Wave Propagation, Stress and Strain Analysis in a Mixture Material, Ecological Models, Electromagnetic Model, Super Conductor etc.)

Research Keywords

Numeical Analysis, Mathematicl Method in Science and Engineering, Financial Mathematics, Mathematical Physics, Computational Mathematics, Ecological/Epidemic Models

Kim, Hyun Kwang / 김현광

Education 1988: Ph.D., Johns Hopkins University
1981: M.S., Seoul National University
1979: B.S., Seoul National University

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Major Research Achievements

- Evaluation of Dedekind zeta functions of the simplest cubic fields
- On regular polytope numbers
- A classification of posets admitting the MacWilliams identity
- Optimal single deletion correcting code of length four over an alphabet of even size

Research Interests

- Algebraic Number Theory : class number problems, evaluation of zeta functions
- Additive Number Theory : Waring's problem for polytope numbers, partitions
- Coding Theory : Optimal structures in coding theory, poset codes

Research Keywords

Dedekind zeta function, Polytope numbers, Optimal codes, Poset codes

Park, Jae-Suk / 박재석

Education 1999: Ph.D., Universiteit van Amsterdam
1995: M.S, University of Wales at Swansea

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Major Research Achievements

- Foundation of topological p-branes
- Deformation theory of coisotropic sub manifolds
- Foundation of homotopy probability theory

Research Interests

- Mathematical Foundation of Quantum Field Theory
- Homotopy Theory
- Symplectic Gemetry

Research Keywords

Quantization, Deformation Theory, String Theory, Symplectic Geometry, Homotopy Algebra

Bak, Jong-Guk / 박종국

Education 1988: Ph.D., University of Wisconsin-Madison
1986: M.S., University of Wisconsin-Madison
1980: B.S., Seoul National University

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Major Research Achievements

- A new method of interpolation for vector-valued sequence spaces and the proof of the optimal weak-type estimate for the Fourier restriction operator related to curves
- Solution of the Drury-Marshall problem concerning the optimal Fourier restriction

Research Interests

- Harmonic Analysis
- Partial differential equations

Research Keywords

Fourier restriction theorems, Oscillatory integral operators, Convolution estimates for measures, Fourier integral operators, Maximal functions

Park, Jeehoon / 박지훈

Education 2007: Ph.D., Boston University
2001: B.S., Seoul National University

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Homepage http://math.postech.ac.kr/~jeehoonpark/

Major Research Achievements

- p-adic family of half-integral weight modular forms via overconvergent Shintani lifting, manuscripta mathematica, Volume 131, Numbers 3-4 / March (2010), 355-384.
- The Darmon-Dasgupta units over genus fields and the Shimura Correspondence, Journal of

Research Interests

- Algebraic Number Theory
- P-adic family of automorphic forms (eigenvarieties)
- Special values of (p-adic) L-functions
- Iwasawa theory
- P-adic Hodge theory and p-adic local Langlands

Research Keywords

Iwasawa Theory, p-adic modular forms, Galois representations, (p-adic) L-functions, Langlands correspondence, Theta correspondence

Park, Jihun / 박지훈

Education 2001: Ph.D., Johns Hopkins University
1996: M.S., Seoul National University
1994: B.S., Seoul National University

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Homepage http://math.postech.ac.kr/~wlog

Major Research Achievements

- Log canonical thresholds on hypersurfaces and existence of Kaehler-Einstein metrics
- Group presentation of birational automorphism groups of Fano 3-fold hypersurfaces
- Factoriality of 3-fold hypersurfaces with nodes
- Rigidity of birational map

Research Interests

- Birational Geometry
- Complex Geometry

Research Keywords

Fano variety, Log canonical threshold, Kaehler-Einstein metric, Birational-rigidity.

Bae, Myoungjean / 배명진

Education 2009: Ph.D., University of Wisconsin-Madison
2005: M.S., University of Wisconsin-Madison
2003: B.S., Yonsei University

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Major Research Achievements

- 'Regularity of solutions to regular shock reflection for potential flow' (with M. Feldman and G. Chen) published in Invent. Math.
- 'Transonic shocks in multi-dimensional divergent nozzles' (with M. Feldman) published in Arch. Ration. Mech. Anal

Research Interests

- Nonlinear PDEs
- Free boundary problems
- Mathematical fluid dynamics

Research Keywords

Euler system, transonic shock, free boundary, elliptic, mixed type PDE

Shim, Yong Sun / 심영선

Education 1988: Ph.D., University of South Carolina
1984: M.S., University of South Carolina
1976: B.S., Seoul National University

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Major Research Achievements

- Classical Analysis and PDEs
- Maximal Function Spaces and Approximation
- Nonlinear PDEs and Applied Mechanics
- Nonlinear Schroedinger Equations

Research Interests

- Harmonic Analysis
- Partial Differential Equations

Research Keywords

Maximal Operators, Dispersive Equations, MaximalfunctionsmeasuringSmoothness

Irine Peng

Education 2008: Ph.D., University of Chicago
2002: M.S., University Of Chicago
2001: B.S., University of Auckland

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Major Research Achievements

- Liftoff Fellow, Clay Math Institute 2008;
- Viterbi Fellow, MSRI, 2011.

Research Interests

- large scale geometry of polycyclic groups, solvable groups, symmetric spaces;
- representation of discrete groups of semisimple Lie groups.

Research Keywords

Coarse geometry, quasi-isometry, symmetric spaces, property RD

Oh, Yong Geun / 오용근

Education 1988: Ph.D., University of California at Berkeley
1983: B.S., Seoul National University

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Major Research Achievements

- 1988 The Bernard Friedman memorial prize in Applied Math, UC Berkeley
- 2000 Korean Young Scientist Prize
- 2002~2004 Vilas Associate Award in the University of Wisconsin
- 2012 Kyung-Ahm Prize in Arts & Sciences - Natural Sciences

Research Interests

- Symplectic geometry
- Hamiltonian dynamics and symplectic topology
- Gromov-Witten-Floer theory and homological mirror symmetry
- Enhanced compactification of pseudoholomorphic curve moduli spaces

Research Keywords

Symplectic geometry, Hamiltonian dynamics, Symplectic topology, Gromov-Witten-Floer theory, Homological mirror symmetry

Cha, Jae Choon / 차재춘

Education 2000: Ph.D., KAIST
1995: M.S., KAIST
1993: B.S., KAIST

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Major Research Achievements

- A topological approach to Cheeger-Gromov universal bounds for von Neumann rho-invariants, to appear in Comm. Pure Appl. Math. (2016)
- Covering link calculus and the bipolar filtration of topologically slice links (with M. Powell), published in Geom. T

Research Interests

- Geometric Topology
  - Knot Theory
  - Topology of Low Dimensional Manifolds
- Related Algebra and Algebraic Topology

Research Keywords

Topology, Knots, Links, Manifolds, Noncommutative Algebra, L2-invariants

Choi, Sung Sub / 최성섭

Education 1990: Ph.D., University of Rochester
1982: M.S., Seoul National University
1980: B.S., Seoul National University

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Major Research Achievements

- Topics in semiparametric inference, with special reference to survival analysis
- Analysis of longitudinal and survival data
- Semiparametric regression with current status data
- Nonlinear and Stochastic Analysis of Financial Market Systems
- Para

Research Interests

- General Statistics, Applied Statistics, Asymptotic Theory, Semiparametric
  Models, Stochastic Process, Financial Mathematics

Research Keywords

Stochastic Process, Applied Probability, Financial Mathematics, Nonparametric Inference, Semiparametric Inference, Distribution Theory, Survival Analysis

Choie, Young Ju / 최영주

Education 1986: Ph.D., Temple University
1982: B.S., Ehwa Women's University

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Major Research Achievements

- Introduced a new concept of Schubert Eisenstein series in automorphic forms
- Found connections between error correcting codes and Jacobi forms
- Extended period theory of modular forms in terms of cohomology groups

Research Interests

- Modular Form, Number Theory
- L functions, Automorphic forms

Research Keywords

Automorphic form, Jacobi form, Periods, L-function, Invariants

Choi, Yun Sung / 최윤성

Education 1986: Ph.D., The University of Rochester
1984: M.S., The University of Rochester
1981: B.S., Seoul National University

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Major Research Achievements

- Denseness of Norm Attaining Mappings
- Numerical Index of a Banach Space
- Holomorphic Mappings on a Banach Space
- Properties of Polynomials
- Geometric Properties of a Banach Space

Research Interests

- Functional Analysis

Research Keywords

Norm-Attaining Mappings, Polynomials, Holomorphic Mapping, Multilinear Mappings, Banach Spaces

Hwang, Hyung Ju / 황형주

Education 2002: Ph.D., Brown University
1997: M.S., POSTECH
1995: B.S., POSTECH

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Major Research Achievements

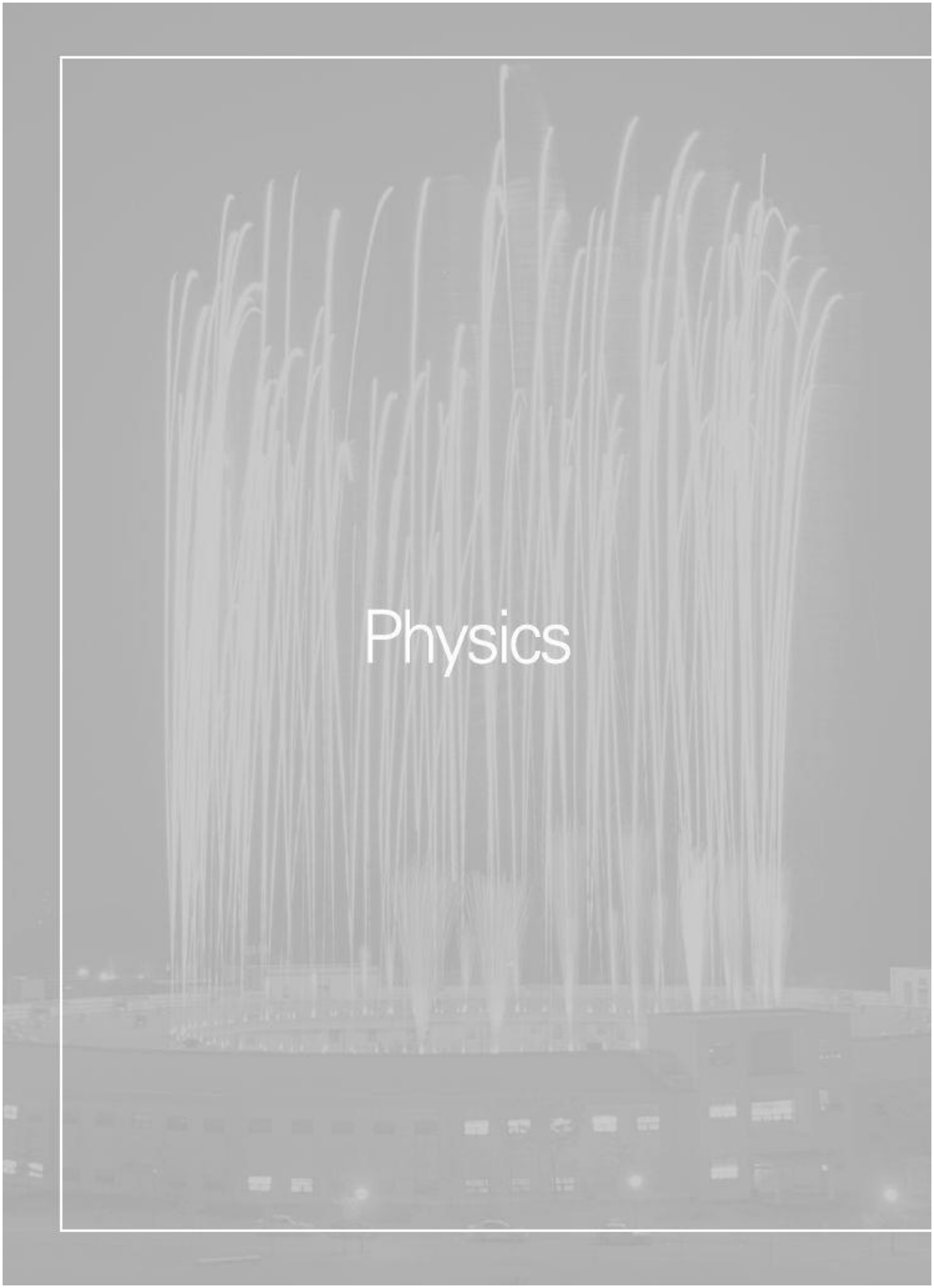
- Boundary value problems in kinetic theory
- Nonlinear dynamics in fluids
- Mathematical theory in biological systems

Research Interests

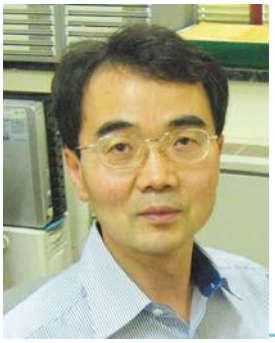
- Kinetic theory with applications
- Fluid mechanics
- Mathematical Biology

Research Keywords

Nonlinear partial differential equations, Fluid mechanics, Mathematical methods in biology



Physics



Kang, Myung Ho / 강명호

Education 1988: Ph.D., University of Pennsylvania
1980: B.S., Seoul National University

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Major Research Achievements

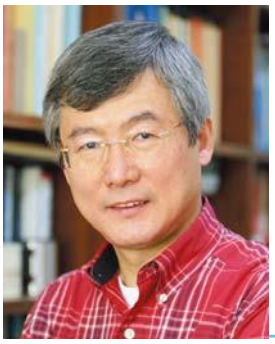
- Theory of graphene on transition-metal surfaces
- Theory of metal wires & overlayers on Si surfaces
- Theory of molecule(O2, H2O, C60, etc.)-surface interactions
- Theory of atomic-scale oxidation of Si surfaces

Research Interests

- Solid State Physics Theory
- Density Functional Theory Calculations
- Surface Physics
- Nano Materials Physics

Research Keywords

Density functional theory, Electronic structure, Semiconductor surface, Metal overlayer, Nanowire



Ko, In Soo / 고인수

Education 1987: Ph.D., University of California at Los Angeles
1977: M.S., Seoul National University
1975: B.E., Seoul National University

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Major Research Achievements

- Participation of Pohang Light Source (PLS) Design, Construction, Commissioning, and Operations
- Participation of KSTAR Control System Design
- Participation of Proton Engineering Frontier Project (PEFP) Accelerator Design
- Successful fabrication of

Research Interests

- Accelerator Physics
- Control System Design for Large-Scale Physics Experiments including Accelerators and Fusion Device
- Development of Advanced Photocathode Gun and Superconducting Cavity Technology

Research Keywords

Accelerator, beam physics, tokamak, fusion, control system design, photocathode gun, superconducting cavity

Kim, Keun Su / 김근수

Education 2010: Ph.D., Yonsei University
2005: B.S., Yonsei University

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Major Research Achievements

- Discovery of tiny twists in bilayer graphene that solves a conduction mystery
- Discovery of negative-differential-resistance effects in bilayer graphene
- First observation of the electronic band structure of liquid metals
- Discovery of a way to s

Research Interests

- Artificial design of two-dimensional atomic crystals
- Angle-resolved photoemission spectroscopy with synchrotron radiation
- Dynamics of composite particles and quantum states of matter

Research Keywords

Two-dimensional atomic crystals, Angle-resolved photoemission spectroscopy, Electronic structure, Surface and interface physics, Synchrotron radiation

Kim, Ki-Seok / 김기석

Education 2004: Ph.D., POSTECH
2000: B.S., POSTECH

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Major Research Achievements

- Novel non-Fermi liquid state driven by emergent localized magnetic moments in heavy-fermion quantum criticality
- Role of axion electrodynamics in a topological Fermi-liquid state
- Emergence of deconfined local quantum criticality in strongly disorde

Research Interests

- Quantum criticality and novel metallic states beyond Landau's Fermi-liquid paradigm
- Topological Fermi-liquid theory as a result of the interplay between electron correlations and topological structures
- Role of disorders in quantum phase transition

Research Keywords

Quantum criticality, non-Fermi liquid, deconfinement in gauge theory, topological Fermi-liquid, Mott and Anderson metal-insulator transitions

Kim, Dong Eon / 김동언

Education 1989: Ph.D., Princeton University
1984: M.S., Princeton University
1982: B.S. Seoul National University

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Major Research Achievements

- Successful demonstration of 18.2 nm soft x-ray amplification using capillary-discharge plasmas
- Development of analysis technique of molten Zn pot by using laser-induced breakdown spectroscopy
- Development of 2.87nm source for X-ray microscope usin

Research Interests

- Ultrafast optics : fs TW laser, sub-10 fs laser, CEP-stabilized fs laser, attosecond pulse generation, ultrafast X-ray science
- study of ultrafast dynamics in atomic, molecualr, and nanoscopic systems using fs, as pulses, in connection with Max Planck

Research Keywords

Laser, Ultrafast Optics, X-ray Optics, attosecond Science, Atomic Physics, Nano Magnetism/Magnetic Materials.

Kim, Yoon-Ho / 김윤호

Education 2001: Ph.D., University of Maryland, Baltimore County
1995: B.S., Yeungnam University

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Homepage http://qopt.postech.ac.kr

Major Research Achievements

- "Experimental demonstration of delayed-choice decoherence suppression" [Nature communications 5, 4522 (2014)]
- Engineering Frequency-Time Quantum Correlation of Narrow-Band Biphotons from Cold Atoms" [Physical review letters 113, 063602 (2014)]
- "No

Research Interests

- Atom-Photon Coherent Interaction
- Photonic Quantum Information Processing
- Quantum Communication
- Quantum Optics
- Quantum Nonlinear Optics
- Quantum Photonics

Research Keywords

Quantum Information, Atomic Physics, Quantum Optics, Quantum Photonics, Nonlinear Optics

Kim, Jun Sung / 김준성

Education 2004: Ph.D., Seoul National University
2000: M.S., Seoul National University
1998: B.S., Seoul National University

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Major Research Achievements

- Discovery of new bulk Dirac materials.
- Investigation of new carbon-based or iron-based superconducting materials.
- High-field magnetic quantum oscillation study on novel two-dimensional materials.

Research Interests

- Exotic superconductivity and magnetism in low dimensional quantum matters and their heterostructures.
- Synthesis and single crystal growth of noble complex materials showing unusual quantum phenomena
- Electrical/thermal transport properties of conde

Research Keywords

Superconductivity, Magnetism, Synthesis, Single crystal growth, Transport properties, High magnetic fields, High pressures

Kim, Jee-Hoon / 김지훈

Education 2007: Ph.D., University of Texas at Austin
2000: M.S., Chung-Ang University
1997: B.S., Chung-Ang University

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Major Research Achievements

- Invention of a novel method to measure absolute value of magnetic penetration depth
- Found a new class of skyrmion crystals in a f-electron system
- Built world best low temperature magnetic force microscope

Research Interests

- Investigation of origin of high temperature superconductivity
- Magnetic force microscopy in unconventional magnetism
- Study of Heavy Fermion superconductors

Research Keywords

Magnetic force microscopy, superconductivity, Heavy Fermion materials, magnetism, quantum materials

Kim, Tae-Hwan / 김태환

Education 2005: Ph.D., Seoul National University
1999: M.S., Seoul National University
1997: B.S., Seoul National University

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Major Research Achievements

- measuring grain boundary resistivity of copper nanowires
- spin-polarized scanning tunneling microscopy of single-crystalline magnetic dot array
- first observation of topological solitons in 1D charge density waves

Research Interests

- scanning tunneling microscopy/spectroscopy on nanostructures
- microscopic electrical transport through nanostructures
- various phase transitions as a function of temperature

Research Keywords

Scanning tunneling microscopy, Scanning tunneling spectroscopy,Spin-polarized scanning tunneling microscopy, Phase transition, nanostructure

Min, Byung Il / 민병일

Education 1985: Ph.D., Northwestern University
1980: M.S., Seoul National University
1978: B.S., Seoul National University

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Major Research Achievements

- Transport Properties of the Polaron and the Magnetic Polaron in Magnetic Systems
- Origin of the giant magnetic moments of magnetic impurities in Cs films
- Theoretical search for spintronic materials: DMS and Half-metallic antiferromagnets

Research Interests

- Condensed Matter Theory (Electronic structure theory / Many body theory)
- Magnetism and Superconductivity
- Strongly correlated electron systems, Spintronic materials

Research Keywords

Electronic structure, Magnetism, Spin-orbit interaction, Lattice and Magnetic Polaron, Electron-Phonon interaction

Park, Jaemo / 박재모

Education 1997: Ph.D., California Institute of Technology
1990: M.S., Seoul National University
1988: B.S., Seoul National University

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Major Research Achievements

- Small instanton transition in heterotic M-theory
- Construction of the world volume action of the M-theory five-brane
- Construction of the supersymmetric orientifolds in six dimensions
- Stringy realization of the supersymmetric field theories

Research Interests

- Nonperturbative aspects of string and M-theory
- Supersymmetric quantum field theory
- Physics of black holes
- String theory and mirror symmetry

Research Keywords

Field theory, High energy theory, String theory, black hole, AdS/CFT correspondence, string compactification, M2 brane CFT(conformal field theory)

Park, Jae Hoon / 박재훈

Education 1994: Ph.D., University of Michigan
1987: M.S., Seoul National University
1985: B.S., Seoul National University

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Major Research Achievements

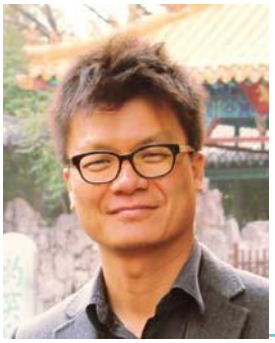
- Mechanism for ferroelectricity in multiferroic YMnO3
- Anomalous orbital and bond Anisotropy in polar magnet GaFeO3
- The origin of ferromagnetism in diluted magnetic semiconductor
- The first observation of a Half-metallic Ferromagnet
- Discove

Research Interests

- Electronic Structure and Magnetic Properties of Solids
- Strongly correlated Materials
- Multifunctional Magnetic Oxides
- Magnetic Thin Film and Multilayer Systems
- Heterostructural Oxides

Research Keywords

Electronic Structure, Magnetism and Magnetic materials, Strongly correlated Materials, Multiferroicity, Complex materials, Oxide thin films and heterostructure, Magnetic thin films and multilayers, Soft x-ray spectroscopy



Song, Changyong / 송창용

Education 2001: Ph. D. Iowa State University
1995: B.S. Jeonbuk National University

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Homepage https://sites.google.com/site/femtoxv4/

Major Research Achievements

- 3D nanoscale architecture of mammmlian nucleus
- Imaging hydrate biological specimens
- Femtosecond dynamic imaging of nanoparticles

Research Interests

- Femtosecond x-ray diffraction and imaging
- Ultrafast irreversible phase changes
- Noninvasive 3D imaging at nanoscale

Research Keywords

Femtosecond X-ray laserSingle-pulse imagingnon-equilibrium & irreversible phase change

Shin, Heedeuk / 신희득

Education 2011: Ph.D., University of Rochester
2002: M.S., Hanyang University
2000: B.S., Hanyang University

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Homepage https://sites.google.com/site/heedeukshin/

Major Research Achievements

- On-Chip RF Photonic Filter via Delocalized Photon-Phonon Interaction
- First Observation of Stimulated Brillouin Scattering in Silicon Nano-Structures
- Enhanced Entangled-State Phase Estimation by Mixing Quantum and Classical Protocols
- Quantum Sup

Research Interests

- Light-Matter Interactions at Nanoscales
- Creation of Quantum Entangled Photon Sources in Silicon Nano-Structure
- On-chip Quantum Information Processing
- Strong Photon-Phonon Interaction and applications

Research Keywords

Quantum Nano-Photonics, Nonlinear Optics, Optomechanics, Photon-Phonon Interaction, Entangled Photon Pairs, Quantum Integrated Circuit.

Yeom, Han Woong / 염한웅

Education 1996: Ph.D., Tohoku University
1991: M.S., POSTECH
1989: B.S., Seoul National University

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Major Research Achievements

- Discovery of metal-insulator transitions of atomic wires on silicon surfaces
- Realizing systematic doping and band-gap control of atomic wires on silicon surfaces
- Establishing surface electronic structures of cubic SiC(001) surface phases
- Cha

Research Interests

- Electronic property of nano or atomic scale structures on solid surfaces
- Self-assembly of nano or atomic scale structures on solid surfaces
- Angle-resolved photoelectron spectroscopy
- Scanning tunneling microscopy and spectroscopy

Research Keywords

Condensed matter physics, Electronic structure, Surface and interface, Nano physics, Atomic wire, Photoelectron spectroscopy, Scanning tunneling microscopy, Synchrotron radiation

Ryu, Chang Mo / 유창모

Education 1983: Ph.D., Princeton University
1978: M.S., Syracuse University
1975: B.S., Seoul National University

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Major Research Achievements

- Construction of PLS (Linac)
- Dynamo mechanism
- Alfven wave spectrum
- Quantum Waveguide theory in mesoscopic structures
- Spin motive force

Research Interests

- Alfven waves
- Nonlinear Plasma Phenomena
- Quasilinear Analysis
- Magnetohydrodynamics
- Dynamo mechanism

Research Keywords

Plasma physics, Fluid/Transport, Space plasma, Nuclear fusion core physics

Yun, Gunsu / 윤건수

Education 2008: Ph.D., California Institute of Technology
2004: M.S., California Institute of Technology
1998: B.S., POSTECH

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Major Research Achievements

- Development of 2D high-resolution microwave imaging diagnostics
- Visualization of magneto-hydrodynamic (MHD) instability dynamics in fusion plasma
- Discovery of a universal mechanism for helical magnetic flux tubes generated by localized heating
-

Research Interests

- Dynamic equilibria and phase transitions of MHD modes in fusion plasma
- Microwave/RF interactions with plasmas and soft dielectric materials.
- High-pressure plasma source technology for biological and medical applications
- Plasma physics under ext

Research Keywords

Magneto-hydrodynamics, Microwave imaging, Plasma bio-physics, High-pressure plasma

Yoon, Moohyun / 윤무현

Education 1986: Ph.D., University of Manitoba
1982: B.S., Korea University

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Major Research Achievements

- Pohang Light Source Project
- Generation of a Coherent Radiation
- 13-MeV Cyclotron for positron emission tomography (PET)
- 30-MeV Cyclotron for radio-isotope production

Research Interests

- X-ray sources, X-ray optics, Free-electron lasers
- Accelerator and Beam Physics related with linear and circular particle accelerators
- Wakefield accelerator
- Particle accelerators for medical application

Research Keywords

Particle Accelerator Physics, Beam Physics, X-ray Optics

Lee, Nam Ki / 이남기

Education
2005: Ph.D., Seoul National University
2000: M.S., Seoul National University
1998: B.S., Seoul National University

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Homepage http://smcb.postech.ac.kr/

Major Research Achievements

- Development of new single-molecule technique, alternating-laser excitation, 2004
- First observation of RNA polymerase dynamics in living cell at the single-molecule level, 2010

Research Interests

- Experimental Biophysics
- Single-molecule FRET
- Single cell imaging using fluorescent protein
- Super-resolution imaging
- Microfluidic device for biological application
- Real-time observation of Protein Dynamics in living cells
- Dynamics

Research Keywords

Single-molecule, FRET, Fluorescent imaging, super-resolution, living cell, recombination protein, biophysics, RNA polymerase, GFP, YFP

Lee, Jong-Bong / 이종봉

Education
2004: Ph.D., Brandeis University
1996: M.S., Sogang University
1993: B.S., Sogang University

E-mail jblee@postech.ac.kr
Homepage http://biophysics.postech.ac.kr/moniwiki/wiki.php

Major Research Achievements

- A first-of-a-kind study of the enzymatic kinetics of a multi-enzyme complex at the single-molecule level.
- Elucidate the puzzle of leading strand synthesis during primer synthesis in DNA replication.
- Reveal the mechanism of a mismatch finding and

Research Interests

- DNA mismatch repair
- Translation initiation
- Internalization of membrane proteins

Research Keywords

Biological physics, Single-molecule biophysics, DNA mismatch repair, Translation initiation, Receptor internalization

Lee, Hyun-Woo / 이현우

Education 1996: Ph.D., Massachusetts Institute of Technology
1990: B.S., KAIST

E-mail hwl@postech.ac.kr
Homepage https://sites.google.com/site/hwllab/

Major Research Achievements

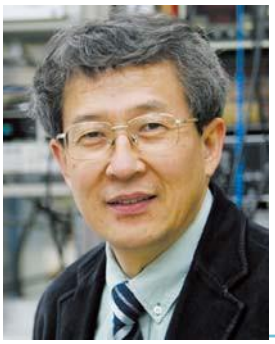
- Theory of electron counting statistics
- Theory of transmission phase in an interacting quantum dot
- Magnetic domain wall motion in ferromagnetic nanowires

Research Interests

- Spin polarized transport in nanoscale systems
- Nanoscale magnetization dynamics
- Electronic correlations in low dimensional systems

Research Keywords

Nano/Mesoscopics, Electronic transport properties, Spintronics, Nanoscale magnetization dynamics, Nonlinear dynamics



Lee, Hu-Jong / 이후종

Education 1985: Ph.D., Ohio State University
1975: B.S., Seoul National University

E-mail hjlee@postech.ac.kr
Homepage http://qtsl.postech.ac.kr/

Major Research Achievements

- Phase-coherent transport in mesoscopic systems of reduced dimensions such as thin films, nano wires, quantum dots
- Intrinsic Josephson tunneling, Josephson vortex dynamics, THz radiation, interlayer tunneling spectroscopy in intrinsic nano-stacked hig

Research Interests

- Quantum conduction and coherent electron motion in nanostructure systems
- Chiral quantum transport in graphene and topological insulators
- Josephson coupling in graphene and topological insulators

Research Keywords

Quantum transport in nanostructures, phase-coherent transport properties, quantum tunneling, naturally stacked Josephson junctions, Josephson vortex dynamics, chiral transport in graphene, helical transport in topological insulators

Jeong, Yoon Hee / 정윤희

Education 1987: Ph.D., University of Chicago
1977: B.S., Seoul National University

E-mail yhj@postech.ac.kr
Homepage http://amos.postech.ac.kr/

Major Research Achievements

- ~ 170 papers in research journals, 15 patents
- "Netzsch Award", Korean Thermophysical Society (2011)
- "Measurement Science Award", KRISS (2011)
- "The Prime Minister Award", Korea Invention and Patent Convention (2004)
- "The 30 Best Research of

Research Interests

- Ferromagnetic and ferroelectric metal oxides
- Ferrous materials
- Calorimetry and thermal analysis
- X-ray scattering and absorption
- Laser Molecular Beam Epitaxy

Research Keywords

Magnetism and magnetic materials, nano materials, ferroelectric materials

Chung, Jin Wook / 정진욱

Education 1984: Ph.D., Brown University
1976: M.S., KAIST
1974: B.S., Seoul National University

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Homepage http://snpl.postech.ac.kr/

Major Research Achievements

- Hydrogen-induced reconstruction of metal surfaces [Phys. Rev. Lett. (PRL) 56, 749 (1986), and PRL 59, 2192 (1987)]
- Driving mechanism of reconstruction of metal surfaces [PRL 69, 2228 (1992)]
- Effect of spin-orbit coupling on surface bands [PRL 82,

Research Interests

- Structural/electronic properties of solid surfaces and nanomaterials
  (Nanowires, Nanodots, Nanofilms)
- Fabrication of exotic properties of solid surfaces and namomaterials
  (Nanowires, Nanodots, Nanofilms)
- Experimental methods : Angle-resolv

Research Keywords

Surface/Interface/thin film, Structural/Electrical properties of surface/Nanomaterials, Non-Fermi liquid properties, Phase transitions of low-dimensional systems, ARPES, Surfcae-sensitive X-ray scattering, HREELS

Cho, Moohyun / 조무현

Education 1988: Ph.D., University of Wisconsin-Madison
1979: M.S., Seoul National University
1977: B.S., Seoul National University

E-mail mhcho@postech.ac.kr

Homepage http://www-ph.postech.ac.kr/~mhcho/

Major Research Achievements

- Pohang Light Source Project; 2-GeV e-Linac
- Development of industrial e-Linac (<10 Mev)
- HV Pulse systems for Environmental applications
- KSTAR project; SC coil power supply, ECH & LHCD system e-Linac based Pohang Neutron Facility with T-O-F line

Research Interests

- Basic Plasma & Beam Physics Experiments
- Fusion Plasma Experiments
- Plasma processing applications
- Pulsed power technology - Environmental application
- Neutron cross section measurement

Research Keywords

Plasma sheath, ECH, LHCD, KSTAR, ITER, Pulsed power, High power microwave, Klystron, Gyrotron, Accelerators

Jhi, Seung-Hoon / 지승훈

Education 1998: Ph.D., Seoul National University
1992: M.S., Seoul National University
1990: B.S., Seoul National University

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Homepage http://cnpl.postech.ac.kr/

Major Research Achievements

- Electronic Mechanism of Hardness of Transition Metal Alloys
- Electrical Properties of Oxidized Carbon Nanotubes
- Metal Adsorption on Graphene Nanoribbons
- Covalently-bonded Graphenes for Hydrogen Storage
- Enhanced Thermoelectric Power of Car

Research Interests

- First principles calculations of condensed matter
- Carbon nanomaterials: carbon nanotubes and graphene
- Hydrogen storage materials
- Ab initio study of materials for phase change memory and thermoelectric power
- Topological insulator

Research Keywords

Condensed matter physics, electronic structure, nanomaterials, semiconductors, energy storage materials, hard materials

Hong, Chung Ki / 홍정기

Education 1988: Ph.D., University of Rochester
1984: M.S., University of Rochester
1979: M.S., KAIST
1977: B.S., Seoul National University

E-mail ckho@postech.ac.kr

Homepage http://appliedoptics.postech.ac.kr/

Major Research Achievements

- Quantum optical interference phenomena and indistinguishability
- Nondestructive test using out-of-plane phase-shifting ESPI
- Nonclassical and nonlocal double-slit interference experiment
- Quantum eraser effect in two-photon double-slit interfer

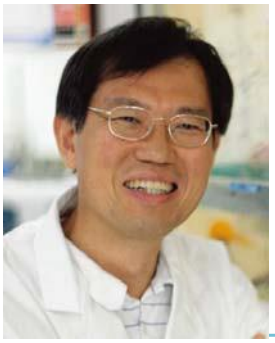
Research Interests

- Quantum Optics(Entanlement of Photon-Pairs)
- Digital Holography
- Optical Coherence Tomography

Research Keywords

Digital holography, Phase-shifting interferometry, Optical coherence tomography, Speckle interferometry, Optical shape measurement

Chemistry



Kim, Kimoon / 김기문

Education 1986: Ph.D., Stanford University
1978: M.S., KAIST
1976: B.S., Seoul National University

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Major Research Achievements

- Discovery of the family of pumpkin-shaped macrocyclic molecules, cucurbit[n]uril, and study of their remarkable recognition properties
- Development of a wide variety of functional materials: vesicles, polymer nanocapsules and nanoparticles, 2D polym

Research Interests

- Novel supramolecular assemblies built with cucurbiturils and their applications
- Biological science and technology via strong and specific host-guest interactions
- Polymeric nanomaterials architectured by irreversible covalent self-assembly
- Multi

Research Keywords

Supramolecular chemistry, Self-assembly, Materials chemistry, inorganic chemistry, Nanoporous materials

Kim, Mahn Joo / 김만주

Education 1987: Ph.D., Harvard University
1981: M.S., Seoul National University
1977: B.S., Kangwon National University

E-mail mjkim@postech.ac.kr
Homepage http://obmc.postech.ac.kr/

Major Research Achievements

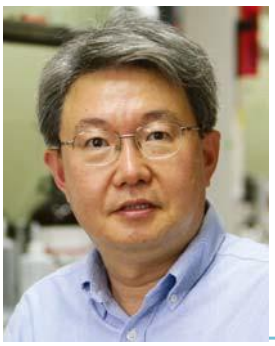
- Development of efficient biocatalysts
- Dynamic kinetic resolutions by enzyme-metal cocatalysis
- Asymmetric transformations by enzyme-metal cocatalysis
- Biocatalysis in ionic liquids
- Synthesis of chiral drugs

Research Interests

- Nanochemistry : nanocatalysis and nanobiocatalysis
- Organic Synthesis : asymmetric catalysis and synthesis for the synthesis of chiral molecules
- Enzyme Chemistry : biocatalysis and biotransformations for the synthesis of chiral molecules

Research Keywords

Asymmetric Catalysis, Biocatalysis, Asymmetric Synthesis, Enzymes, Chiral Drugs



Kim, Byeang Hyean / 김병현

Education 1987: Ph.D., University of Pittsburgh
1979: M.S., KAIST
1977: B.S., Seoul National University

E-mail bhkim@postech.ac.kr
Homepage http://www.bhk-lab.com/

Major Research Achievements

- Development of Quencher-free Molecular Beacon
- Synthesis ofFunctional Oligonucleotides for Gene Delivery
- Development of Novel Dipeptide Isosteres
- Total Synthesis of Nonactin

Research Interests

- Modified Nucleic Acid Systems
- Modified shRNA for RNAi
- Fluorescent Oligonucleotides for Probing DNA/RNA
- Modified Nucleosides for Gels, Liposomes, and Drug Candidates

Research Keywords

Nucleic Acid Chemistry, Chemical Biology, Bioorganic Chemistry, Gene Delivery, Nucleic Acid Sensing

Kim, Sungjee / 김성지

Education 2003: Ph.D., Massachusetts Institute of Technology
1997: B.S., POSTECH

E-mail sungjee@postech.ac.kr
Homepage http://www.nanotrio.com/

Major Research Achievements

- Synthesis of quantum dots and studies of their optical properties (J. Phys. Chem. C, 2011, 115, 436, Chem. Mater. 2010, 22, 233, J. Phys. Chem. C 2009, 113, 6320, ChemPhysChem, 2009, 10, 1466)
- Surface modification of quantum dots (Adv. Funct. Mater.

Research Interests

- Optical properties of quantum dots
- Quantum dot based optoelectronic devices.
- Biomedical imaging applications using quantum dots
- Surface plasmon and biomedical applications of metal nanoparticles

Research Keywords

Quantum dot, Metal nanoparticle, Biomedical imaging, Solar cell,

Surface chemistry

Kim, Won Jong / 김원종

Education 2004: Ph.D., Tokyo Institute of Technology
2001: M.S., Tokyo Institute of Technology
1998: B.S., Hanyang University

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Homepage http://bmpl.postech.ac.kr/

Major Research Achievements

- Polymeric Drug and Gene delivery (Nature Comm 2014, ACS Nano 2014, 2013)
- Nitric Oxide delivery (Angew. Chem. 2013)
- Polymeric Gene Analysis (Nature Mat 2003, JACS 2002, Nano Lett 2011)

Research Interests

- Biopolymer Chemistry
- Drug/Gene Delivery system
- Biopolymer-Mediated Gene Analysis
- Nitric Oxide Delivery
- DNA Nanomedicine

Research Keywords

Polymer chemistry, Biopolymer, Nanobiomaterials, Gene therapy

Ryu, Sunmin / 류순민

Education 2005: Ph.D., Seoul National University
2000: M.S., Seoul National University
1998: B.S., Seoul National University

E-mail sunryu@postech.ac.kr
Homepage http://sunryu.postech.ac.kr/

Major Research Achievements

- D. Lee, G. Ahn and S. Ryu,* "Two-Dimensional Water Diffusion at a Graphene-Silica Interface", J. Am. Chem. Soc. 136, 6634 (2014)
- J. E. Lee, G. Ahn, J. Shim, Y. S. Lee, and S. Ryu,* "Optical Separation of Mechanical Strain from Charge Doping in Graphe

Research Interests

- Spectroscopy of low-dimensional materials
- Surface & interfacial science in low dimensions
- Photophysics and photochemistry of nanomaterials

Research Keywords

Low dimensional materials,Optical spectroscopy,Surface & interface

Park, Jaiwook / 박재욱

Education
1987: Ph.D., Princeton University
1982: M.S., Seoul National University
1980: B.S., Seoul National University

E-mail pjw@postech.ac.kr
Homepage http://oml.postech.ac.kr/

Major Research Achievements

- Development of organometallic catalysts for organic reactions.
- Development of metal nanoparticle catalysts for organic reactions
- Development of N-H imine chemistry

Research Interests

- Organometallic catalysts
- Metal nanoparticle catalysts
- Development of new organic reactions

Research Keywords

Organometallics, Catalysts, Metal nanoparticles, Synthetic methodology, Green chemistry

Park, Joon Won / 박준원

Education 1988: Ph.D., California Institute of Technology
1981: M.S., KAIST
1979: B.S., Sogang University

E-mail jwpark@postech.ac.kr

Homepage http://jlab.postech.ac.kr/

Major Research Achievements

- Molecular Layers for DNA-chip
- Self-Assembled Molecular Layers
- Lanthanide Luminescene Probe
- Catalysts for Ziegler-Natta Polymerization

Research Interests

- DNA Chip/Biosensor
- Self-Assembled Monolayer (SAM)
- Bio-AFM

Research Keywords

Nano-Scale Controlled Surface, Self-Assembled Monolayer (SAM), Bio-chip and Bio-Sensor, Atomic Force Microscopy for Bioanalysis and Diagnosis, Single Molecule Spectroscopy

Ban, ChangIll / 반창일

Education 1996: Ph.D., The Ohio State University
1992 & 1984: M.S., The Ohio State University & Seoul National University
1982: B.S., Pusan National University

E-mail ciban@postech.ac.kr

Homepage http://bsb.postech.ac.kr/

Major Research Achievements

- Development of biosensors for the detection of human
- Determined the crystal structures of MutS, MutH, MutL, and Calmodulin
- Determined the structural conversion from B-DNA to A-DNA
- Distinction between single-strand and double-strand DNA prote

Research Interests

- Biosensor
- Bio-nanotechnology
- Structural Biology

Research Keywords

Biosensor, Protein/Enzyme Chemistry, Structural Biochemistry, Nucleic acid Chemistry, Bio-analytical chemistry

Shin, Seung Koo / 신승구

Education 1989: Ph.D., California Institute of Technology
1984: M.S., Seoul National University
1980: B.S., Seoul National University

E-mail skshin@postech.ac.kr
Homepage http://fticr.postech.ac.kr/

Major Research Achievements

- Biological Studies of Tri-glycerol Lipase in Yeast
- Mass-Balanced H/D-Isotope Dipeptide Tags for Protein Quantitation
- Synthesis, Surface Chemistry, and Spectroscopy of Semiconductor Nanocrystals
- Mass Spectrometric Studies of Noncovalent Ion–Mol

Research Interests

- Development of Mass Spectrometric Techniques
- Molecular Recognition in the Gas Phase
- Mass Spectrometry-Based Quantitative Proteomics
- Optoelectronic and Biological Applications of Fluorescent Semiconductor Nanocrystals

Research Keywords

Chemical Reaction Dynamics, Fluorescent Semiconductor Nanocrystals, Mass Spectrometry, Proteomics, Biophysical Chemistry,

Shim, Ji Hoon / 심지훈

Education 2004: Ph.D., POSTECH
2000: B.S., POSTECH

E-mail jhshin@postech.ac.kr
Homepage http://dmft.postech.ac.kr/

Major Research Achievements

- Chemical/Physical properties of 4f-electron system (Nature 2007; Science 2007)
- Design of advanced materials (Phys. Rev. Lett. 2008; 2011)
- High thermoelectric performance in In4Se3-d (Nature 2009; Adv. Mater. 2011)

Research Interests

- Solid state chemistry & condensed matter physics
- Advanced materials design using Density Functional Theory (DFT)
- Development of computational method combining DFT and many body interaction

Research Keywords

Solid state physical chemistry, Condensed matter physics, Strongly correlated electron system, Quantum chemistry, Computational chemistry

Ahn, Kyo Han / 안교한

Education 1985: Ph.D., KAIST
1982: M.S., KAIST
1980: B.S., Seoul National University

E-mail ahn@postech.ac.kr
Homepage http://www.ahn-postech.com/

Major Research Achievements

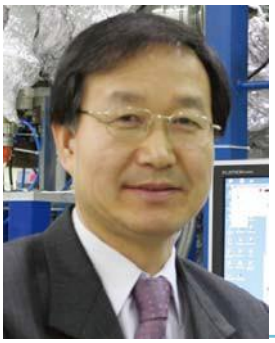
- Making dipolar dyes emit in aqueous media
- Two-photon dyes with suppressed autofluorescence in tissue imaging
- Reactive fluorescent probes for silver ions and nanoparticles
- Turn-on fluorescent sensing of amino-carboxylates
- Chiral discriminatio

Research Interests

- Molecular probes for diagnosis and imaging of disease biomarkers
- Luminescent materials for bioimaging
- Molecular recognition and sensing

Research Keywords

molecular probes, luminescent materials, nano/bio-functionalmaterials, bioconjugation



Ree, Moonhor / 이문호

Education 1987: Ph.D., University of Massachusetts at Amherst
1979: M.S., KAIST
1977: B.S., Korea University

E-mail ree@postech.edu
Homepage http://mree.postech.ac.kr/

Major Research Achievements

- Ultra-low Dielectric, Low-expansive, and LC-aligning Polymers and Composites
- Photoreactive, Conducting, Memory, and Sensor Polymers
- Well-Defined Functional Brush Polymers
- Structure, Surface and Interface of Nano-structured Polymers and Compo

Research Interests

- Synthesis and Properties of Self-Assembled Functional Materials for Information Technology and Biomedical Applications: Linear, Block, and Brush Polymers
- Nanostructures and Hierarchical Structures of Functional Materials in Solid and Solution:
Linea

Research Keywords

Polymer Synthesis, Polymer Structure, Polymer Properties, Smart Functional Polymers, Biomacromolecules

Rhee, Young Min / 이영민

Education 2005: Ph.D., Stanford University
1997: M.S., Seoul National University
1995: B.S., Seoul National University

E-mail ymrhee@postech.ac.kr
Homepage http://singlet.postech.ac.kr/

Major Research Achievements

- Development of new quantum chemical methods for treating electronic excited states
- Elucidation of dynamics in bioluminescent protein complex
- Application of quantum chemical methods for elucidating unknown chemical behaviors

Research Interests

- Theoretical investigation of bioluminescent systems
- Molecular dynamics studies of photosynthetic systems
- Development of new quantum chemical methodologies

Research Keywords

Reaction dynamics, Bioluminescence, photoprotein, Photophysical chemistry, Excited states

Rhee, Young Ho / 이영호

Education 2003: Ph.D., Stanford University
1992: M.S., Seoul National University
1990: B.S., Seoul National University

E-mail yhree@postech.ac.kr
Homepage http://yhrhee.postech.ac.kr/

Major Research Achievements

- "Gold(I)-Catalyzed Cycloisomerization of 3-Methoxy-1,6-enynes Featuring Tandem Cyclization and [3,3]-Sigmatropic Rearrangement, " H. J. Bae, B. Baskar, S. E. An, J. Y. Cheong, D. T. Thangadurai, I.C. Hwang and Y. H. Rhee*, Angew. Chem. Int. Ed. 2008, 47

Research Interests

- Developing new transition metal-catalyzed reactions
- Developing new catalytic asymmetric reactions
- Total synthesis of bioactive natural products

Research Keywords

Organic Chemistry, Organometallic chemistry, Natural product chemistry, Bioorganic chemistry, New synthetic methods, Total synthesis of Natural Products

Lee, Eunsung / 이은성

Education 2009: Ph.D., Stanford University
2001: M.S., POSTECH
1999: B.S., POSTECH

E-mail eslee@postech.ac.kr
Homepage http://iom.postech.ac.kr/

Major Research Achievements

- Development of new method to access 18F-labelled aromatic compounds using Transition-metal chemistry
- Development of transition-metal chemistry using novel low-valent palladium complexes
- Development of supramolecular networks using coordination che

Research Interests

- Synthesis and application of inorganic and organometallic catalysts for activating small molecules highly efficiently.
- Synthesis and application of inorganic and organometallic complexes which show regioselective organic transformations in metal-orga

Research Keywords

Metal-organic framework (MOF), Transition-metal chemistry, fluorination, positron emission tomography (PET), catalysis

Lee, In Su / 이인수

Education 2000: Ph.D., Seoul National University
1997: M.S., Seoul National University
1995: B.S., Seoul National University

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Homepage http://npml.postech.ac.kr/

Major Research Achievements

- Development of target-specific multimodality imaging agent
- Development of nanoreactor-based method for the high concentration synthesis of metal nanoparticles. with enhanced electrocatalytic performance
- Development of fabrication method for the mu

Research Interests

- Synthesis and modification of metal and metal oxide nanocrystals
- Fabrication of nanoparticles for the biomedical, catalytic, and energy application
- Synthesis and application of 2-D nanostructured materials

Research Keywords

Nanoparticle, Inorganic Chemistry, Molecular imaging agent, Catalyst, 2-D nanomaterial

Lim, Hyun-Suk / 임현석

Education 2004: Ph.D., POSTECH
1993: M.S., Hanyang University
1991: B.S., Hanyang University

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Homepage http://cbl.postech.ac.kr/

Major Research Achievements

- Development of macrocyclic peptides/peptidomimetics and novel foldamers
- Development of highly efficient high-throughput screening methods for rapid discovery of protein ligands
- Identification of first-in-class chemical modulators of disease-relate

Research Interests

- Development of novel synthetic molecules that can mimic protein surface structure and function
- Development of innovative technology platforms for rapid and efficient discovery of protein ligands
- Development of chemical modulators of protein-protei

Research Keywords

Chemical biology, Drug discovery, Protein-protein interactions

Chang, Taihyun / 장태현

Education 1984: Ph.D., University of Wisconsin
1975: B.S., Seoul National University

E-mail tc@postech.ac.kr
Homepage http://tc.postech.ac.kr/

Major Research Achievements

- Fabrication and characterization of oriented LB films
- Anionic polymerization and characterization of polymers with complex architecture
- Diffusion of small molecules in polymer matrix
- HPLC and mass spectrometric characterization of synthetic

Research Interests

- Polymer Thin Films and Interfacial Properties
- Characterization Method of Polymers
- Thermodynamics and Dynamics of Polymeric Materials

Research Keywords

Polymer Characterization, Chromatography, Mass spectrometry, Block copolymer, Nano-structure, Surface/Interface

Cho, Seung Hwan / 조승환

Education 2011: Ph.D., KAIST
2005: B.S., KAIST

E-mail seunghwan@postech.ac.kr
Homepage http://chogroup.postech.ac.kr/

Major Research Achievements

- Cho, S. H.; Hartwig, John, F.* "Iridium-catalyzed Borylation of Secondary Benzylic C-H Bonds Directed by Hydrosilane" J. Am. Chem. Soc. 2013, 135, 8157.
- Ryu, J.; Cho, S. H.* ; Chang, S.* "A Versatile Rh(I) Catalyst System Enabling the Addition of Het

Research Interests

- Transition-metal catalyzed C-H bond functionalization of hydrocarbons
- Transition-metal catalyzed activation of CO2
- Stereo- and Chemoselective cross-couplings

Research Keywords

Organic Synthesis, Transition metal catalyst, Reaction Mechanism, C-H activation

Joo, Taiha / 주태하

Education 1993: Ph.D., Cornell University
1986: M.S., Seoul National University
1984: B.S., Seoul National University

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Homepage http://femto.postech.ac.kr/

Major Research Achievements

- Ultrafast time-resolution in time-resolved fluorescence apparatus
- Coherent nuclear wave packet motion in the reaction product state by time-resolved spontaneous fluorescence
- Molecular reaction dynamics of the excited state intramolecular proton

Research Interests

- Dynamics in condensed phases by employing femtosecond time domain spectroscopies
- Development of new techniques in femtosecond lasers and time domain measurements
- Applications of femtosecond spectroscopy to semiconductor nanostructures and biomol

Research Keywords

Ultrafast Reaction dynamics, Molecular dynamics, Materials Physical Chemistry, Femtosecond spectroscopy, femtosecond laser

Choi, Hee Cheul / 최희철

Education 2001: Ph.D., Purdue University
1996: M.E., Kyungpook National University
1994: B.E., Kyungpook National University

E-mail choihc@postech.ac.kr
Homepage http://choigroup.wix.com/nmrl

Major Research Achievements

- Meso size effect (MSE) of self-assembled highly conjugated molecules displaying unprecedented electrical, optical, and mechanical properties
- A new surface chemical reaction of carbon nanotubes (carbothermal reduction) enabling Si etching at sub-10 n

Research Interests

- Self-assembly of electrically and optically active organic/inorganic molecules
- Synthesis and properties of carbon nanotubes and graphenes
- Development of nanoscale electronic/optoelectronic devices
- Electrical biosensor applications using nano

Research Keywords

Inorganic materials chemistry, Inorganic supramolecular chemistry, Nanomaterials chemistry, Nanomedicinal chemistry, NanoEleectrical/optical devices

Hahn, Jong Hoon / 한종훈

Education 1988: Ph.D., Stanford University
1981: M.S., KAIST
1979: B.S., Pusan National University

E-mail hahn@postech.ac.kr
Homepage http://postech-labbi.ac.kr/

Major Research Achievements

- Development of Lab-on-a-Chip Techniques
- Development of High-Throughput Continuous-Flow PCR Systems
- Development of Electrochemical DNA Sensing Methods

Research Interests

- Lab-on-a-chip
- Bioanalysis
- Environmental Analysis

Research Keywords

Lab-on-a-Chip, Bioanalysis, Environmental Analysis, Instrumental Analysis,Capillary Electrophoresis


Life Sciences

Gho, Yong Song / 고용송

Education 1997: Ph.D., University of North Carolina
1989: M.S., Seoul National University
1987: B.S., Seoul National University

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Homepage http://icn.postech.ac.kr

Major Research Achievements

- Development of angiogenesis inhibitors
- Diverse pathophysiological functions of mammalian and bacterial extracellular vesicle
- Proteomic and genomic analyses of mammalian and bacterial extracellular vesicle
- Development of drug delivery system

Research Interests

- Systemic study on intercellular communication network
- Proteome, function and biogenesis of mammalian and bacterial extracellular vesicle
- Systemic study on plasma membrane protein

Research Keywords

Systems Biology, Nanobio materials, Bioinformatics, Signal transduction, Membrane biology

Kim, Kyong Tai / 김경태

Education 1989: Ph.D., University of Massachusetts
1982: M.S., KAIST
1980: B.S., Seoul National University

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Homepage http://mnp.postech.ac.kr/

Major Research Achievements

- Identification of VRK3 function in ERK signalings
- Functional roles of VRK1 in cell cycle and development of VRK1 inhibitors as antitumor agents
- Involvement of VRK2 in neurodegenerative diseases
- Identification of IRES-mediated translation of

Research Interests

- Study for oscillatory expression mechanism of biorhythm-related genes
- Translational regulation and decay process of mRNA in synapse
- Functional characterization of Vaccinia-related kinase(VRK) family

Research Keywords

VRK, circadian rhythm, cell cycle, Synaptic mRNAs

Kim, Sanguk / 김상욱

Education 2002: Ph.D., Florida State University
1996: M.S., Korea University
1992: B.S., Korea University

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Major Research Achievements

- Developed effective protein structure prediction methods
- Construction of functional interaction network of the human proteome
- Improved understanding of cell signaling through protein-protien interaction network

Research Interests

- Computational structural biology and bioinformatics
- Structural and functional characterization of membrane proteins
- Development of prediction methods for protein structure and protein-protein interaction

Research Keywords

Protein Science, Systems biology, Bioinformatics, Protein localization, Network biology, Protein interaction, Membrane protein, Sequence evolution

Kim, Joung-Hun / 김정훈

Education 2000: Ph.D., Imperial College, University of London
1996: M.S., Seoul National University
1992: B.S., Seoul National University

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Major Research Achievements

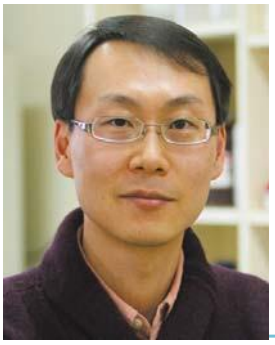
- Functional roles of autism-associated proteins in mature neural circuits
- Elucidation of small GTPase mechanism to long-term memory
- Identification of structural changes of individual synapses in synaptic plasticity
- Identification of pathway-s

Research Interests

- Molecular Mechanisms of Synaptic Plasticity
- Mechanistic Study of Cell Adhesion Molecules
- Pathopsiology of Neurodegeneratve and Psychiatric Diseases

Research Keywords

Synaptic Plasticity, Neurodegenerative and Psychiatric Diseases, Addiction, Neural circuits



Roh, Tae-Young / 노태영

Education 2002: Ph.D., Seoul National University
1998: M.S., Seoul National University
1996: B.S., Hanyang University

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Major Research Achievements

- Development of a new genome-wide analysis technique with high resolution
- Identification of functional roles of epigenetic modification on gene regulation
- Establishment of epigenetic regulatory network in model systems
- Chromatin-mediated geno

Research Interests

- Stem Cell and Cancer Epigenetics: Especially we are interested in epigenetic mechanism during cell maintenance, differentiation, and reprogramming at the whole genome level.
- Genome Function: The systematic interpretation using computational analysis

Research Keywords

Genomics, Epigenetics, Gene Regulation, Stem cell, Cancer, Systems Biology

Ryu, Sung Ho / 류성호

Education 1985: Ph.D., KAIST
1981: M.S., KAIST
1979: B.S., Seoul National University

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Major Research Achievements

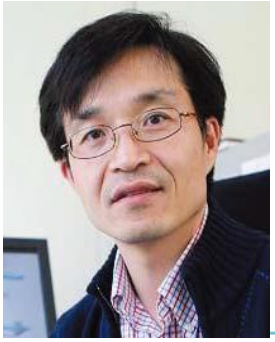
- Signaling proteome networks and molecular mechanisms of phospholipase D-mediated signaling in cell growth, movement and membrane traffics
- Development and application of new peptide hormones for immunomodulation and diabetes controls.
- Aptamer pla

Research Interests

- Biocommunication between Cells, Signaling Proteomics
- Molecular Diversity, Hormone Discovery
- Capturing Technology with Aptamer, Biomarkers & Diagnostics

Research Keywords

Signal transduction, proteomics, aptamer, diabetes, cancer



Park, Sang Ki / 박상기

Education 2001: Ph.D., University of Virginia
1993: M.S., Seoul National University
1991: B.S., Seoul National University

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Major Research Achievements

- Provided molecular links between dopamine signaling and depression
- Formulated critical modulatory concepts in dopamine receptor function
- Identified and characterized key molecular components of dopamine neurotransmission
- Identified molecular

Research Interests

- Molecular mechanisms underlying dopamine-related psychiatric disorders
- Neurochemical basis of mood disorders and drug addiction
- Molecular modeling of schizophrenia

Research Keywords

Psychiatric Disease, Biology of Neurological Disorders, Signal Transduction, Genetically Modified Animal Models, Dopamine Neurotransmission

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Yoo, Joo-Yeon / 유주연

Education 1997: Ph.D., University of Maryland
1991: M.S., Seoul National University
1989: B.S., Seoul National University

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Major Research Achievements

- Computational analysis of transcription regulatory network
- PAF1c mediated transcriptional regulation of inflammatory genes
- Role of ISG15 in the negative regulation of anti-viral signaling
- Regulation of RLR signaling network in the anti-viral

Research Interests

- Host defense against intracellular RNA virus
- Cellular signaling network of innate immune response
- Transcription regulatory network of innate immune response
- In silico screening/Computational Biology

Research Keywords

Anti-viral Signaling, transcription, genomics, innate immunity, systems biology

Lee, Seung-Jae / 이승재

Education 2003: Ph.D., JOHNS HOPKINS University
1997: M.S., Seoul National University
1995: B.S., Seoul National University

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Major Research Achievements

- Mechanisms by which temperature sensation regulates aging through steroid hormone in C. elegans
- Elucidation of the roles of glucose and insulin signaling in the lifespan regulation in C. elegans
- Mechanistic insights into the FOXO-insulin-FOXO si

Research Interests

- Dissection of interaction between intrinsic and extrinsic factors that influence aging in C. elegans
- Regulation of protein translation in C. elegans
- C. elegans as a model for various human diseases

Research Keywords

Life science, Genetics, Molecular genetics, Cellular genetics, Signal transduction, C. elegans, Aging

Lee, Youngsook / 이영숙

Education 1988: Ph.D., University of Connecticut
1980: M.S., Seoul National University
1978: B.S., Seoul National University

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Major Research Achievements

- Discovery of genes that confer plants' resistance to Pb, Cd, As, Zn, and Hg
- Development of transgenic plants for phytoremediation
- Identification of factors that regulate stomatal movements
- Identification of plant lipid transporters

Research Interests

- Heavy-metal resistance mechanisms in plants and Phytoremediation
- ABC transporters in plants
- Plant signal transduction
- Bio-diesel production from plants

Research Keywords

Transporters, signal transduction, lipid biochemistry, plant biotechnology, phytoremediation

Lee, Yoontae / 이윤태

Education 2006: Ph.D., Seoul National University
2003: M.S., Seoul National University
2001: B.S., Seoul National University

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Major Research Achievements

- Discovery of microRNA biogenesis pathway
- Identification of key factors in microRNA biogenesis pathway
- Elucidation of in vivo physiological function of Capicua-Atxn1L transcription repressor complexes

Research Interests

- Role of Capicua-Atxn1L transcription repressor complexes in cancer progression
- in vivo function of microRNAs
- Characterization of interaction between Capicua and Atxn1L

Research Keywords

Atxn1, Atxn1L, Capicua, MicroRNA, Cancer

Jang, Sung Key / 장승기

Education 1989: Ph.D., University of New York, Stony Brook
1984: M.S., Seoul National University
1982: B.S., Seoul National University

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Major Research Achievements

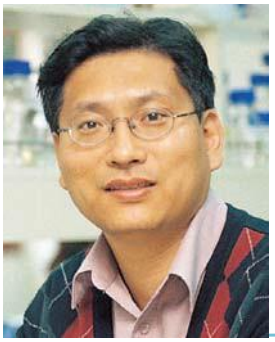
- Discovery of IRES element
- Discovery of a new initiator tRNA carrier eIF2A
- Discovery of cap-dependent translation initiation mechanism: translation through 'RNA looping'

Research Interests

- Translation initiation mechanism
- Hepatitis C Virus (HCV) and host interaction
- Development of anti-HCV drugs
- Improvement of aptamer technology

Research Keywords

Translation mechanism, IRES-dependent translation, RNA looping, anti-HCV drug, Aptamer



Cho, Yunje / 조윤제

Education 1993: Ph.D., Cornell University
1989: M.S., Iowa State University
1986: B.S., Seoul National University

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Major Research Achievements

- Molecular basis of the inactivation of E2F1 by Retinoblastoma tumor suppressor (Genes Dev, 2002, EMBO J 2001)
- elucidation of the mechanism of re-replication inhibition by geminin (Nature 2004, Gene Dev. 2007)
- Structural basis of the DNA damage sig

Research Interests

- to understand how genomic stability is maintained in mammalian cells
- How DNA repair machinery / damage signaling machinery is regulated
- What is the structure and function relationship of tumor suppressor proteins

Research Keywords

Cancer biology, Tumor suppressor, DNA damage signaling, Genomic stability regulation, Structural Biology

Choi, Kwan Yong / 최관용

Education 1988: Ph.D., University of California, Davis
1977: M.S., KAIST
1975: B.S., Seoul National University

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Major Research Achievements

- Signaling networks, mechanism and biomarker discovery in cancer
- Application of dendron-based biochips for cancer and nanotechnology
- Development of next generation protein drugs by Fc protein engineering

Research Interests

- Protein Networks in Cancer Biology
- Cancer Metabolism
- Mechanism of Aging Process
- Aging-related Disease

Research Keywords

Cancer Biology, Metabolic Disorder, Aging, Protein Network, Nano-Bio Material

Han, Jin-Kwan / 한진관

Education 1991: Ph.D., University of California, Davis
1982: B.S., Yeungnam University

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Major Research Achievements

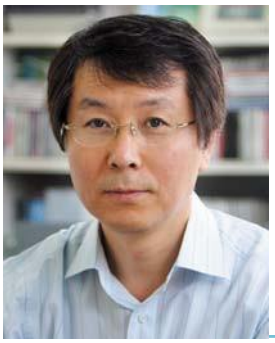
- Elucidation of control mechanism of gastrulation cell movement
- Elucidation of molecular mechanism of Wnt/Fz signaling pathway in early animal development
- Elucidation of mechanism of TGF-β signaling pathway in germ layer specification
- Genome-wid

Research Interests

- Pattern formation in vertebrate embryo; control of morphogentic cell movement,
- Cell fate determination in vertebrate; regulation of Wnt and TGF-ß signaling pathways
- Molecular mechanisms of organogensis in vertebrate embryo

Research Keywords

Xenopus, Animal Development, Embryogenesis, Organogenesis, TGF-β, Wnt Signaling, Gastrulation



Hwang, Inhwan / 황인환

Education 1988: Ph.D., University of North Carolina-Chapel Hill
1983: M.S., Seoul National University
1981: B.S., Seoul National University

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Major Research Achievements

- Elucidation of protein trafficking mechanism
- Elucidation of protein targeting mechanism to chloroplasts and mitochondria
- Elucidation of molecular mechanism of ABA homeostasis
- Establishment of High level protein expression system

Research Interests

- Protein Distribution Systems in Plant Cell
- Organelle Development and Evolution of Plant Cell
- Molecular Reprogramming of Plant Cells
- Expression of Foreign Proteins in Plant cells

Research Keywords

Protein biogenesis, organelle development, protein expression, protein trafficking and targeting, phytohormone ABA, dehydration stress

Hwang, Ildoo / 황일두

Education 1999: Ph.D., University of Maryland, College Park
1991: M.S., Seoul National University
1989: B.S., Seoul National University

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Homepage http://dsn.postech.ac.kr/

Major Research Achievements

- Elucidation of cytokinin signal transduction pathway in plants
- Elucidation of Ca homeostasis by Ca transporters in plants
- Establishment of a transient expression system for functional genomics

Research Interests

- Intrinsic developmental signaling networks
- Integration of phytohormone signaling to pathogen resistance in plants
- The role of epigenetic codes during plant growth and development
  - regulatory mechanisms of miRNA expression

Research Keywords

Signal Transduction, System Biology, Bioinformatics, Plant Immunity, Biofuel

Hwang, Cheol-Sang / 황철상

Education 2000: Ph.D., Seoul National University
1996: M.S., Seoul National University
1994: B.S., Seoul National University

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Major Research Achievements

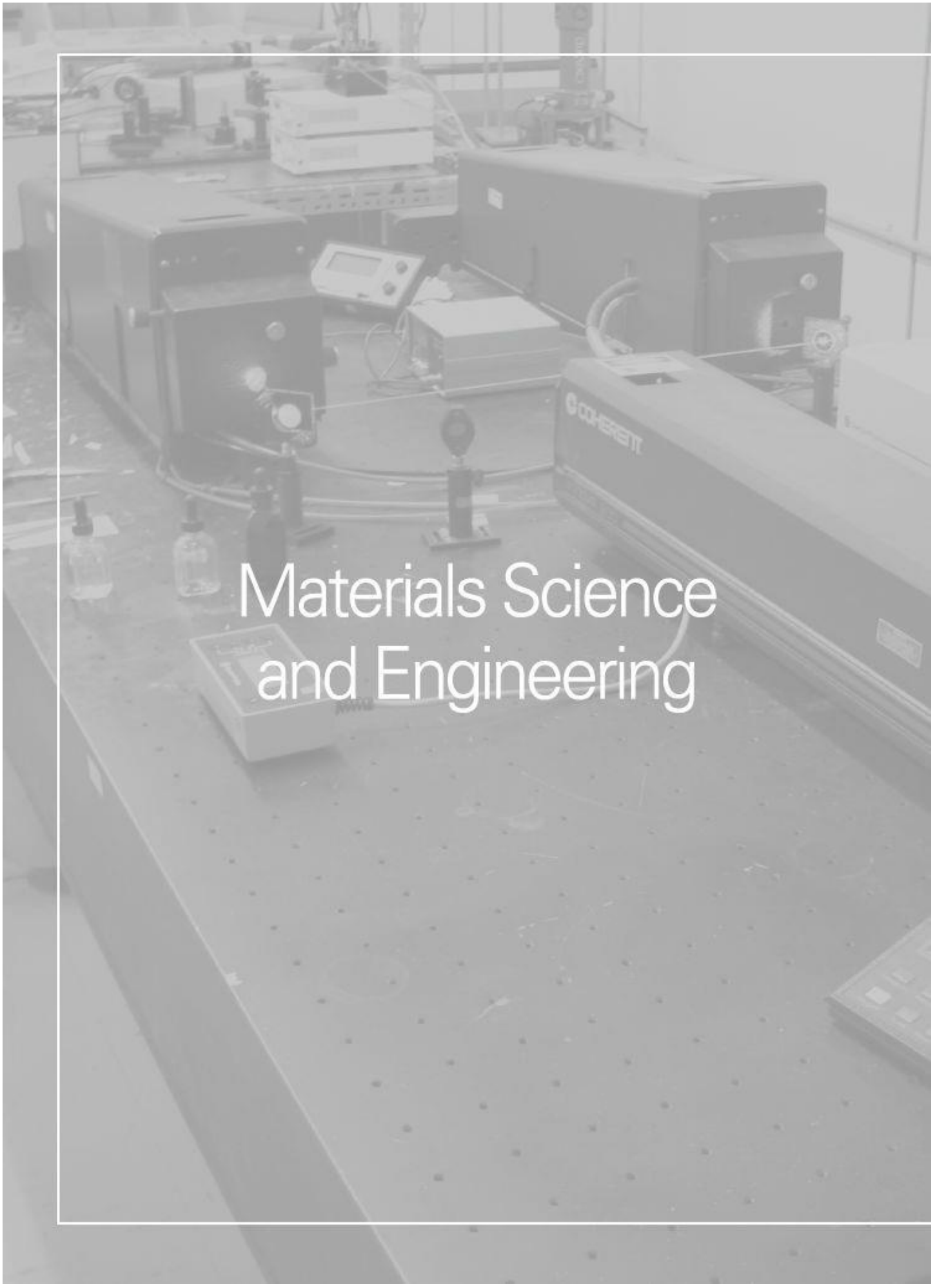
- Discovery of the major function of N-terminal acetylation in cellular proteins
- Establishment of a new N-end rule pathway
- Elucidation of cross-talks between E3 ubiquitin ligases

Research Interests

- Protein dynamics and signaling by N-terminal acetylation
- The N-end rule pathway of ubiquitin-mediated proteolysis
- Co-translational protein degradation
- Protein quality control related to human diseases

Research Keywords

N-terminal acetylation, Ubiquitin, N-end rule, Protein quality control, Protein degradation



Materials Science and Engineering

Kang, Byoung Woo / 강병우

Education 2009: Ph.D., MIT
2003: B.S., Seoul National University

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Homepage http://amee.postech.ac.kr

Major Research Achievements

- Development of cathode material, LiFePO4, to achieve ultrafast charge/discharge
- Development of simple synthesis process to improve kinetics in cathode materials

Research Interests

- Fundamental thermodynamics of materials
- Advanced materials for energy and environment, especially lithium-ion batteries
- The beyond of lithium ion batteries such as sodium, magnesium ion batteries, all-solid-state batteries

Research Keywords

Thermodynamics, Energy related materials, lithium ion batteries

Kwon, Soon Ju / 권순주

Education 1984: Ph.D., MIT
1980: M.S., Seoul National University
1978: B.S., Seoul National University

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Homepage https://sites.google.com/site/lpmdpostech/

Major Research Achievements

- Mossbauer Spectroscopic Study of Magnetoresistance Granular Alloy Films
- Structure and Properties of Giant Magnetoresistance Material
- Structures and properties of complex Iron Oxides for Electromagnetic Wave Application

Research Interests

- Artificial Photosynthesis: CO2 reduction and fuel production
- Magnetic Materials
- Electromagnetic properties and applications of steel plate

Research Keywords

Artificial Photosynthesis, CO2 Reduction, Hydrocarbon Production, Energy Materials, Materials Analysis and Characterization, Magnetic Materials/Components

Kim, Seon Hyo / 김선효

Education 1986: Ph.D., Carnegie-Mellon Univeristy
1979: M.S., Seoul National University
1977: B.S., Seoul National University

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Major Research Achievements

- Development of technology for phosphorus vaporization in a steelmaking slag
- Technology for the reduction of activities of FeO and MnO in ladle refining slags
- Heat and fluid flow model approaches and the control of initial solidification for clea

Research Interests

- Primary and secondary steelmaking process
- Analysis of flow in nozzle and mold during continuous casting of steel
- Solidification in continuous caster of steel
- Refining process of nonferrous metals

Research Keywords

Steelmaking, Continuous casting, Refining process, Computational modeling, Solidification, Clean steel, Nonferrous metal

Kim, Jong Kyu / 김종규

Education 2002: Ph.D., POSTECH
1997: B.S., Yonsei University

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Homepage http://npol.postech.ac.kr

Major Research Achievements

- Developed nano-structured near perfect anti-reflection coatings with unprecedented low reflectivity for solar cells
- Developed polarized LEDs for future displays
- Developed GaInN LEDs with reduced efficiency droop by polarization-matched multiple

Research Interests

- 3-dimensional nano-structured thin film materials and their applications
- Deep UV/visible light-emitting diodes (LEDs) for solid-state lighting, displays, future smart lighting systems
- Optical coatings for photonics and optoelectronics devices (s

Research Keywords

Light emitting diodes, Solar cells, Compound semiconductors, Optical coatings, Gas sensors

Kim, Hyoung Seop / 김형섭

Education 1992: Ph.D., Seoul National University
1988: M.S., Seoul National University
1986: B.S., Seoul National University

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Homepage http://snmpl.postech.ac.kr/

Major Research Achievements

- Development of deformation mechanism for nanocrystalline metals: K-E-B creep
- Development of yield function for porous materials: cellular materials, tissue, bone
- Development of unified viscoplastic constitutive model for dislocation mechanism

Research Interests

- Multi-scale modeling of mechanical behavior and processing for structured nano metals
- Severe plastic deformation processing for ultrafine grained materials
- Nanocrystalline structural metals

Research Keywords

Structural metals, Computer simulation/Finite element analysis, Hybrid/Composite metals, Metal forming technology, Nanostructured metals

Park, Chan Gyung / 박찬경

Education 1983: Ph.D., Northwestern University
1978: M.S., Seoul National University
1975: B.S., Seoul National University

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Homepage http://namcl.postech.ac.kr/

Major Research Achievements

- Atomic scale analysis of structure-morphology–composition in AHSS steels (High-Al, High-Mn, SB-Trip steels)
- Investigation of In clustering and morphological change of InGaN/GaN MQW layers in LED devices by using atom probe tomography
- Investigat

Research Interests

- Microscopic studies on alloying, phase transformation, and process design for AHSS steels (TRIP steels, High-Al steels, High-Mn steels, Tire cords)
- High resolution TEM analysis for nano-scale structures, interface and chemical composition
- Atom p

Research Keywords

Structure Material, Material Analysis/Characterization Technique, Material Components Analysis Technique, Material Structure/Microstructure Analysis Technique, Nanostructured Materials

Son, Junwoo / 손준우

Education 2011: Ph.D., University of California at Santa Barbara
2005: B.S., Seoul National University

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Homepage http://junuson.wix.com/nfoel

Major Research Achievements

- First demonstration of high mobility complex oxide thin films.
- Development of new electronic devices using Mott transition
- Development of new transparent oxide semiconductor

Research Interests

- Epitaxial growth
- Oxide thin film materials for electronic applications
- Next generation electronic switch devices

Research Keywords

Epitaxial growth, Oxide thin films, electronic materials

Lee, Sung Hak / 이성학

Education
1985: Ph.D., Brown University
1981: M.S., Seoul National University
1978: B.S., Seoul National University

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Major Research Achievements

- Development of composites for automotive parts
- Dynamic deformation analysis of penetrators and armor plates
- Fabrication of nano-powder coatings by atmospheric plasma spraying
- Analysis and prevention of cracking occurring during hot rolling o

Research Interests

- Development of amorphous alloy/metal surface composites via high-energy electron beam irradiation (National Research Lab., 2004~2009)
- Development of fiber-reinforced amorphous alloy matrix nanocomposites via liquid pressing process
- In Situ fract

Research Keywords

Advanced high-strength steel, Amorphous alloy, Composite, Dynamic Deformation and Fracture, Fracture toughness analysis

Lee, Jang-Sik / 이장식

Education 2002: Ph.D., Seoul National University
1999: M.S., Seoul National University
1997: B.S., Seoul National University

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Homepage http://neml.postech.ac.kr

Major Research Achievements

▪J.-S. Lee et al., Layer-by-layer assembled charge-trap memory devices with adjustable electronic properties, Nature Nanotechnology 2, 790-795 (2007)

▪ J.-S. Lee et al., Multilevel Data Storage Memory Devices Based on the Controlled Capacitive Coupling o

Research Interests

- Emerging nanoscale memory devices
- Functional nanoelectronic materials and devices
- Flexible/organic nanoelectronic devices

Research Keywords

Memory devices, organic electronics, emerging nanotechnology, self-assemble materials and devices, flexible electronics

Lee, Jong-Lam / 이종람

Education 1985: Ph.D., KAIST
1982: M.S., KAIST
1980: B.S., Hanyang University

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Major Research Achievements

- Development of vertical LED for general lighting
- Development of flexible substrate for flexible electronics
- Implementation of nano structures and nano-rods for optical devices
- Development of transparent electrodes

Research Interests

- GaN-based light emitting diodes (LEDs)
- Flexible organic light emitting diodes (OLEDs)
- Organic photovoltaic and CIGS solar cell
- Architecture of nano structures and nano-rods

Research Keywords

Light emitting diodes, Organic light emitting diodes, Solar cells, Nano materials and devices, Compound semiconductor devices

Jang, Hyun Myung / 장현명

Education 1985: Ph.D., University of California, Berkeley
1980: M.S., Washington University
1976: B.S., Seoul National University

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Homepage http://ferro.postech.ac.kr/

Major Research Achievements

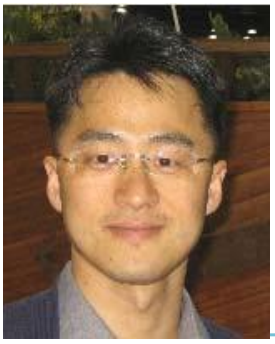
- Development of Ferroelectric Thin Films with Giant Spontaneous Polarizations
- Antiferromagnetic-Ordering-Induced Improper Ferroelectricity in Orthoferrites
- Development of CNT-based Field-Effect Transistors
- Development of NiO Resistive Random

Research Interests

- Design and Fabrication of Multiferroic Thin-Films and Single Crystals with a strong Magnetoelectric (ME) Coupling at Room Temperature
- High-Density New Nonvolatile Memory Devices based on Multiferroic Nano-discs and Nano-rods
- Quantum Mechanical De

Research Keywords

Ferroelectrics, Multiferroics, Non-volatile memory devices, Quantum mechanics, Statistical mechanics



Jeong, Unyong / 정운룡

Education 1984: Ph.D., POSTECH
1980: M.S., POSTECH
1978: B.S., POSTECH

E-mail ujeong@postech.ac.kr
Homepage http://hybrid.postech.ac.kr

Major Research Achievements

- Design of Highly Stretchable Conductive Composite Materials
- Fabrication of Transparent E-skin Sensors
- Area-unlimited Particle Monolayer Assembly
- Synthesis of Surfactant-Free Thermoelectric Nanomaterials

Research Interests

- Stretchable Electronics & electronic skin devices
- Synthesis of Inorganic Nanomaterials in Solutions
- Self-assembly of Nanomaterials
- Strain-responsive Drug Delivery Systems

Research Keywords

Stretchable Devices, Inorganic Synthesis, Solution Process, Polymer Composites, Self-Assembly

Je, Jung Ho / 제정호

Education 1983: Ph.D., KAIST
1981: M.S., KAIST
1979: B.S., Yonsei University

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Major Research Achievements

- Discovery of surface tension reduction of water by hard-X-ray irradiation
- Aerosol formation mechanism in bubble bursting
- Evolution mechanism of an air film into a bubble in drop impact
- A universal wetting principle from a wetting ridge tip on s

Research Interests

- Non-equilibrium interface dynamics in nano(micro)-systems
- Nano-photonics using organic nanowires
- Alveolar dynamics – 3D imaging

Research Keywords

X-ray imaging, 3D(4D) X-ray imaging, ultrafast interface dynamics, 3D interface dynamics, nanowire waveguide, nanowire photodetector, nanowire actuator, alveolar dynamics

Jo, Moon-Ho / 조문호

Education 2001: Ph.D., University of Cambridge
1997: M.S., Yonsei University
1995: B.S., Yonsei University

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Homepage http://dmpl.postech.ac.kr/

Major Research Achievements

- Pioneering Gas-Phase Heteroepitaxy of Low Dimensional Materials
- Text Book Understanding of Electron Spin Tunneling
- First Demonstration of Single Electron Transport in Single-Molecular Magnets
- Discovery of Photoconductive Gain Effects in Semicon

Research Interests

- Heteroepitaxial Growth of Atomically Thin Semiconductors, Correlated Metals and Insulators
- Light Emission, Absorption and Modulation based on Strong 2D Light-Matter Interaction
- Novel Photon-Energy Conversion Processes

Research Keywords

Nanoelectronics, Nanophotonics, Nano/Mesoscopic Physcis, Si Photonic Devices, Energy Materials

Choi, Gyeong Man / 최경만

Education 1987: Ph.D., MIT
1983: M.S., MIT
1979: B.S., Seoul National University

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Homepage http://ecera.postech.ac.kr/

Major Research Achievements

- SOFC with Quick On/Off Operation
- Metal-Support type SOFC (Solid Oxide Fuel Cell)
- Oxygen-permeating membrane
- CO selective Gas Sensors

Research Interests

- Design and Fabrication of Quick On/Off SOFC
- Micro-SOFC for battery replacement
- Fabrication of Metal-support type SOFC
- Hydrogen production from Solid Oxide Electrolysis of water
- Gas-Separation Membrane: Oxygen, Hydrogen, CO2

Research Keywords

Solid Oxide Fuel & Electrolysis Cell, Hydrogen Production, Gas-separation membrane, Electroceramics, Thin film deposition, Nano-ceramic composite, Ionic and electronic conductors

Hahn, Sei Kwang / 한세광

Education 1996: Ph.D., KAIST
1993: M.S., KAIST
1991: B.S., KAIST

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Homepage http://bnl.postech.ac.kr

Major Research Achievements

- Development of protein drug delivery system using cylindrical nanochannels
- Development of target specific interferon alpha - HA conjugate
- Development of long acting anti-angiogenic Flt1 peptide - HA conjugate
- Development of target specific s

Research Interests

- Biomedical nanomaterials – Synthesis and characterization
- Biosensor and bioimaging
- Drug delivery and tissue engineering

Research Keywords

Biomaterials, Biosensor, Bioimaging, Drug delivery, Tissue engineering, Nanomedicine

Heo, Jong / 허종

Education 1988: Ph.D., University of California, Los Angeles
1981: M.S., Seoul National University
1979: B.S., Seoul National University

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Major Research Achievements

- Glasses Containing Quantum Dots for Light Amplification
- New Glasses for the Fiber Optics Communications
- Bulk Light Convertors for LEDs and Solar Cells
- Pb-free Sealing Glasses for Plasma Display Panels

Research Interests

- Nano-Glasses for Photonic Applications
- New Glasses Containing Semiconductor Quantum Dots
- White Light Generation for LEDs
- Light Convertors for Solar Cells
- Glasses for Fiber-Optics and Displays

Research Keywords

Glass/Glass ceramics, Opto-electronic ceramics, Nano ceramics/Nano crystalline ceramics, Quantum Dots, Light Convertors

Hwang, Hyunsang / 황현상

Education 1992: Ph.D., University of Texas at Austin
1988: B.S., Seoul National University

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Homepage http://www.sidp.kr

Major Research Achievements

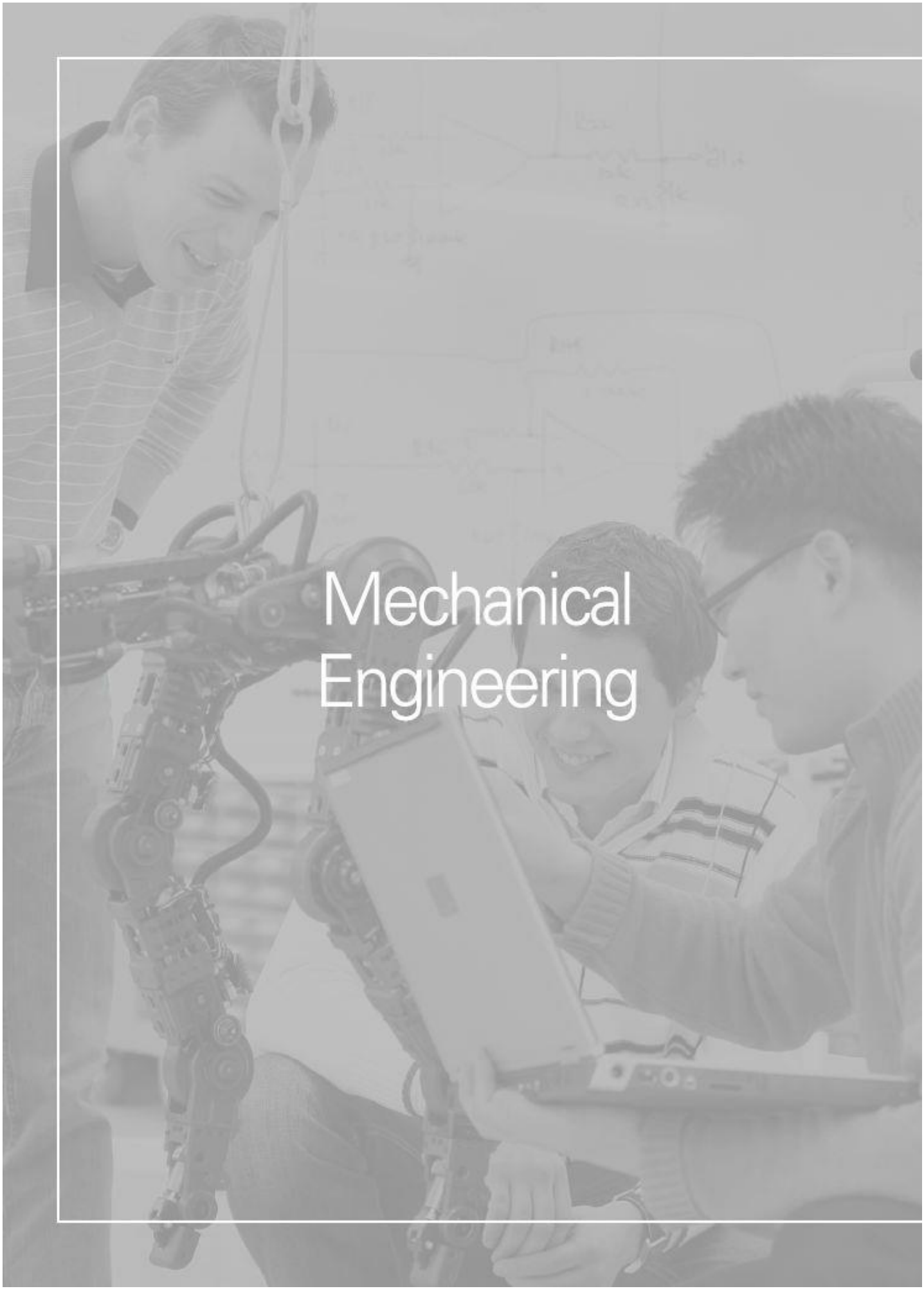
- ReRAM device: Developed ReRAM device with excellent scalability and uniformity for nonvolatile memory applications
- Gate dielectric: New high-k materials/processes for CMOS device application. Developed and commercialized high-pressure annealing syst

Research Interests

- Silicon semiconductor device & process
- Resistive switching nonvolatile memory (ReRAM)
- Neuromorphic device

Research Keywords

ReRAM, Nonvolatile memory, Neuromorphic device, gate dielectric


Mechanical
Engineering

Kim, Ki Tae / 김기태

Education 1984: Ph.D., University of California, Berkeley
1980: M.S., Michigan State University
1976: B.S., Seoul National University

E-mail korean@postech.ac.kr
Homepage http://mbline2.wix.com/amml

Major Research Achievements

- Near-net-shape forming process of complex shaped ceramic part by cold combination pressing and pressureless sintering
- Component forming technology of corrosion resistance materials
- Constitutive model for densification of nanocrystalline ceramic

Research Interests

- Research on the densification mechanism of metal and ceramic powder under room and high temperature
- Research on the densification mechanism of nanocrystalline ceramic powder under high temperature
- Study on the residual stress analysis with respe

Research Keywords

Structural Ceramics, Powder Metallurgy&Technology, Plastic Deformation Analysis, Crystal plasticity/Powder Forming Analysis, Material Characteristic: Prediction/Analysis, nano-Ceramic Forming Technology

Kim, Ki Hean / 김기현

Education 2005: Ph.D., Massachusetts Institute of Technology (MIT)
1996: M.S., Seoul National University
1994: B.S., Seoul National University

E-mail kiheankim@postech.ac.kr
Homepage https://sites.google.com/site/bmoptics1/home

Major Research Achievements

- High-speed, multi-color multiphoton microscopy, and its biological applications
- High-performance polarization sensitive optical coherence tomography (PS-OCT), endoscopic imaging probe, and its clinical studies

Research Interests

- Biomedical Optics
- Instrumentation
- Optical microfabrication
- Signal and image processing

Research Keywords

Biomedical Optics, Nonlinear microscopy, Optical Coherence Tomography (OCT), Instrumentation, Signal and Image Processing

Kim, Dong Sung / 김동성

Education 2005: POSTECH
2001: POSTECH
1999: POSTECH

E-mail smkds@postech.ac.kr
Homepage https://mib.postech.ac.kr/

Major Research Achievements

- Development of disposable microfluidic lab-on-a-chip for point-of-care blood typing
- Development of various types of chaotic micromixers
- Development of polymer nanopillar arrays for biomimetic gecko's foot-hair
- Anodic aluminum oxide stamp and re

Research Interests

- Polymer micro/nano processing
- Tissue engineering
- Microfluidics
- Micro/Nano surface modification
- Bio application

Research Keywords

Multiscale materials processing, Polymer micro/nano molding, Microfluidics, Lab on a chip, Biosystem

Kim, Dong Sik / 김동식

Education 1998: Ph.D., University of California, Berkeley
1993: M.S., Seoul National University
1991: B.S., Seoul National University

E-mail dskim87@postech.ac.kr
Homepage http://lpmht.postech.ac.kr/

Major Research Achievements

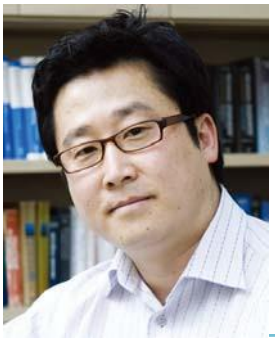
- Analysis and development of various laser microfabrication processes
- Development of measurement techniques and micro sensors for thin films and small-volume liquid samples
- Studies on nanoparticle/nanofluid synthesis and applications

Research Interests

- Laser materials processing
- Microscale heat transfer and thermophysical properties
- Micro thermal systems and sensors

Research Keywords

Laser materials processing, Laser microfabrication, Microscale heat transfer, Bio thermal sensors, Micro thermal systems and sensors



Kim, Joon Won / 김준원

Education
2003: Ph.D., University of California, Los Angeles (UCLA)
1999: M.S., University of California, Los Angeles (UCLA)
1997: B.S., University of California, Los Angeles (UCLA)

E-mail joonwon@postech.ac.kr
Homepage http://mnt.postech.ac.kr/home.html

Major Research Achievements

- Development of novel nanostructure fabrication methods
- Development of microswitchs with liquid-metal contact
- Development of superhydrophobic surfaces (articled on BBC NEWS)
- Dramatic reduction of flow resistance in microfludics (aired

Research Interests

- MEMS/NEMS
- Selective surface modification in various applications (e.g. micro-fluidic applications, bio-applications, consumer electronics, etc.)
- Design and fabrication of micro-actuators and sensors
- MEMS Packaging

Research Keywords

NEMS/MEMS, Nano/micro-sensor, Micro-actuator, Surface modification Bio-device, Nano-fabrication

Rho, Junsuk / 노준석

Education 2013: Ph.D., University of California, Berkeley
2008: M.S., University of Illinois, Urbana-Champaign
2007: B.S., Seoul National University

E-mail jsrho@postech.ac.kr
Homepage http://photonics.postech.ac.kr

Major Research Achievements

- Super-resolution hyperlens imaging at visible frequencies
- Deep sub-wavelength nanoscale cavities
- 22nm resolution maskless high-speed lithography
- Photo-induced negative index switching in terahertz metamolecules
- Photonic spin-Hall effect at m

Research Interests

- Super-resolution real-time bioimaging
- Metamaterial-based imaging
- Scalable process for large scale metamaterials
- High-precision overlay for 3D metamaterials
- Photonic components based on hierarchical and scalable nanofabrication

Research Keywords

Metamaterials, Plasmonics, Nanophotonics, Nanofabrication, Nanomanufacturing

Doh, Junsang / 도준상

Education 2006: Ph.D., Massachusetts Institute of Tech.
1999: B.S., Seoul National University

E-mail jsdoh@postech.ac.kr
Homepage http://imems.postech.ac.kr/

Major Research Achievements

- Development of new type of photoresist polymers for the fabrication of ultiple-protein micropatterned surfaces
- Immune cell interaction study using microfabrication based novel artificial microenvironments

Research Interests

- BioMEMS
- Biomaterials
- Immune system engineering

Research Keywords

Immune system bioengineering, BioMEMS, Bio-imaging, cell mechanics, cell migration

Moon, Won Kyu / 문원규

Education 1995: Ph.D., The University of Texas at Austin
1986: M.S., KAIST
1984: B.S., Seoul National University

E-mail wkmoon@postech.ac.kr

Homepage http://vatrans.postech.ac.kr/

Major Research Achievements

- Design & Fabrication of Ultrasonic Loudspeakers
- Capacitive Displacement Sensors with Nano-resolution in a Centimeter Range
- Modeling of Electro-mechanical System for Transducer Design
- SONAR Transducers for High Directional Emission/Reception

Research Interests

- Transducers for/of Acoustics and Vibrations
- Modeling and Analysis of Electro-mechanical Transducers
- Transducers for Nano/Bio Applications
- Vibration and Noise Control

Research Keywords

Acoustic and Ultrasonic Transducers, Electromechanical Coupling Analyses, Nano-Micro Sensor/Actuator, Vibrations of Structures, Acoustics and Sound Generation/Reception

Park, Jae-Sung / 박재성

Education 2002: Ph.D., University of Wisconsin-Madison
1997: M.S., Seoul National University
1995: B.S., POSTECH

E-mail jpark@postech.ac.kr
Homepage http://mbme.postech.ac.kr/

Major Research Achievements

- Modulation of Embryonic Stem Cell Differentiation Using Microfabrication
- Microchannel bioreactors for bioartificial liver support
- Microfabricated grooved substrates as platforms for bioartificial liver reactor
- A servo-controlled capacitive p

Research Interests

- Micro/Nano devices for biomedical engineering application
- Microelectromechanical Systems Design and Fabrication Process
- Bioartificial Liver and Tissue Engineering
- Biosensors/Nanostructure Interaction
- Micro/Macro-Scale Bioreactor and Bio-

Research Keywords

Nano-Micro Sensor, Micro-Actuator, Micro Device, Nano-Micro Process/Assembly/Measurement, Biochip, Biosensor, Cell/Tissue Engineering, Bioengineering Technology

Park, Hyun Chul / 박현철

Education 1985: Ph.D., University of Iowa
1981: M.S., University of Iowa
1974: B.S., Seoul National University

E-mail hcpark@postech.ac.kr
Homepage http://me.postech.ac.kr/down/park_lab.pdf

Major Research Achievements

- Mechanical properties of the materials in small scale and its applications
- Improvement of the reliability for the MEMS/NEMS devices by evaluating
  mechanical properties accurately
- System design and improvement using structural and dynamic an

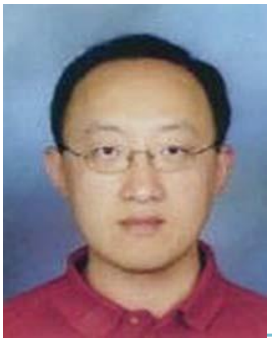
Research Interests

- Micro/Nano-scale Material Properties
- Reliability of MEMS and Nanodevices
- Dynamic and Noise analysis
- Aero-elastic analysis for wind turbine
- Fatigue analysis, and calculation of damage equivalent loads for life time of wind turbine

Achievi

Research Keywords

Micro/Nano, Size Effect, Strain Gradient plasticity, FEM, MBD, Reliability, Bulge Test, Nanoindentation, Support structure, system design, multi-body dynamics, offshore wind turbine



You, Donghyun / 유동현

Education 2004: Ph.D., Stanford University
2004: M.S., Stanford University
1998: M.S., Seoul National University
1995: B.S., Yonsei University

E-mail dhyou@postech.ac.kr

Homepage http://fpe.postech.ac.kr/FPE/About.html

Major Research Achievements

- 2011 ONR Young Investigator Program Award from U.S. Department of Defense
- 2009 Donald L. and Rhonda Struminger Chaired Faculty of Carnegie Mellon University
- 2006 The Lewis F. Moody Award from the American Society df Mechanical Engineers

Research Interests

- Computational flow physics and engineering
- Integrated prediction, analysis, and control of multi-physics problems
- Gas turbine and steam turbine engines
- Renewable and sustainable energy systems,

Research Keywords

Fluid mechanics, Computational physics, Turbulence, Energy systems, Flow control

Lee, Sang Joon / 이상준

Education 1986: Ph.D., KAIST
1982: M.S., KAIST
1980: B.S., Pusan National University

E-mail sjlee@postech.ac.kr

Homepage http://bbrc.postech.ac.kr/

Major Research Achievements

- Diagnosis of bio-fluid flow phenomena and development of creative bio-mimetic technologies
- Analysis of various blood flows related with circulatory vascular diseases
- Effective control of various flows using microfluidics and bio-mimetic techni

Research Interests

- Diagnosis of Bio-fluid Flow Phenomena and Development of Bio-mimetic Technologies
- Diagnosis of Blood-flows Related with Vascular Diseases and Bio-medical Applications
- Development of Advanced Flow Visualization Techniques
- Microfluidics and Na

Research Keywords

Bio-fluid Flows, Bio-imaging, Bio-mimic Technology, Advanced Flow Visualization, Flow Control, Microfluidics

Lee, Jin Won / 이진원

Education 1984: Ph.D., Northwestern University
1977: M.S., KAIST
1975: B.S., Seoul National University

E-mail jwlee@postech.ac.kr

Homepage http://me.postech.ac.kr/down/lee_lab.pdf

Major Research Achievements

- Optimality models for the morphometric parameters of human bronchial tree
- Vortex vent; suction hood with 5D penetration depth using vortex flow field
- Wafer cleaning down to 10nm size using volatile particle beam

Research Interests

- Nano thermo-fluids engineering; micro/nano scale flow and heat transfer, nano particle generation/removal
- Bio-fluids engineering; flow and particle motion in lung airways
- Environmental fluids engineering ; air pollution control, dust collector

Research Keywords

Bio fluid engineering, vacuum technology, environmental control technology, nano fluid enginnering, micro fluid engineering,

Lim, Geunbae / 임근배

Education 1996: Ph.D., Tohoku University
1992: M.S., Yeungnam University
1990: B.S., Yeungnam University

E-mail limmems@postech.ac.kr

Homepage http://biomems.postech.ac.kr/

Major Research Achievements

- Nanowire
- Biosensor
- Droplet control

Research Interests

- Bio Sensor
- Micro/Nano Fabrication
- Brain Signal Measurement

Research Keywords

MEMS, Nanowire, Brain Interfacing

Chung, Wan Kyun / 정완균

Education 1987: Ph.D., KAIST
1983: M.S., KAIST
1981: B.S., Seoul National University

E-mail wkchung@postech.ac.kr
Homepage http://rnb.postech.ac.kr/

Major Research Achievements

- Robust Optimal PID Controller
- Surgical Robot and Haptic device
- Autonomous Underwater Vehicle/Manipulator system

Research Interests

- Manipulation, Position/Force Control of Robot Arm
- Underwater vehicle
- Control of Bio system
- Robot Surgery, cornea surgery, Haptic Interface

Research Keywords

Robotics and Automation, Robust Control of robot, SLAM, Underwater Robot, Surgical Robot

Cho, Dong-Woo / 조동우

Education 1986: Ph.D., University of Wisconsin-Madison
1982: M.S., Seoul National University
1980: B.S., Seoul National University

E-mail dwcho@postech.ac.kr
Homepage http://ims.postech.ac.kr/

Major Research Achievements

- Micro/nano SFF(Solid Freeform Fabrication) technologies for tissue regeneration
  - Micro/nano-stereolithography (MSTL/NSTL) system
  - Projection-based MSTL(pMSTL) system
  - Multi-Head Deposition System (MHDS)
  - Multi-head Tissue/Organ Building System

Research Interests

- Fabrication of 3D micro-structure using various biomaterials
- Cell/organ printing technology based on 3D printing technology

Research Keywords

Solid Freeform Fabrication based tissue engineering, Nano/Micro fabrication technology, 3D Bone and cartilage tissue regeneration, CAD/CAM software, Cell/organ printing technology

Han, Kyung Seop / 한경섭

Education 1980: Ph.D., Case Western Reserve University
1977: M.S., Seoul National University
1974: B.S., Seoul National University

E-mail kshan@postech.ac.kr

Homepage https://sites.google.com/site/kyungseophan/

Major Research Achievements

- Development and numerical analysis of squeeze casting process
- Damage model for tensile and fatigue behavior of metal matrix composites
- Design of composite rotor blade for wind turbine
- Nanoindentation measurement of interfacial property and res

Research Interests

- Processing and characterization of advanced composites
- Design and numerical analysis of structural composites
- Nondestructive evaluation using optical fiber and acoustic emission

Research Keywords

Metal matrix composites, Structural design, Numerical simulation, Wind Energy, Fuel Cell, Sheet metals

Huh, Kang Yul / 허강열

Education 1983: Ph.D., Massachusetts Institute of Technology
1982: M.S., Massachusetts Institute of Technology
1980: B.S., Seoul National University

E-mail huh@postech.ac.kr

Homepage http://combustion.postech.ac.kr/

Major Research Achievements

- Multidimensional simulation of flow, fuel spray, combustion and heat
  transfer in internal combustion engines
- Coherent Flamelet model for turbulent premixed combustion
- Conditional moment closure for turbulent nonpremixed combustion
- Finite

Research Interests

- Combustion Engineering
- Internal Combustion Engine
- Computational Fluid Dynamics

Research Keywords

Internal combustion(IC) engine, Turbulence, Combustion, Computational fluid dynamics(CFD), NOx, Soot, CO2

Hwang, Sang Moo / 황상무

Education 1985: Ph.D., University of California, Berkeley
1979: M.S., Seoul National University
1977: B.S., Seoul National University

E-mail smhwang@postech.ac.kr
Homepage http://me.postech.ac.kr/down/hwang_lab.pdf

Major Research Achievements

- development and industrial application of an on-line computer system for precision control of strip profile and flatness in hot strip rolling
- development of a finite element-based technique for process Optimal Design in Forging
- development of an

Research Interests

- deformation control in metal rolling
- finite element modeling of metal forming processes
- optimal process design in metal forming

Research Keywords

Flat rolling, Metal forming, Finite element method, Process optimization

Hwang, Woon Bong / 황운봉

Education 1988: Ph.D., SUNY at Buffalo
1985: M.S., SUNY at Buffalo
1982: B.S., Hanyang University

E-mail whwang@postech.ac.kr
Homepage http://nscs.postech.ac.kr/

Major Research Achievements

- Design and Optimization of Smart-Skin Antennas: Gain-Enhancement, Omni-Directional Beam Pattern for Communication
- Characterization and Application of Nanohoneycomb/Nanofiber Array Structures: Tribological/Mechanical Characterization, Wetting Character

Research Interests

- Design of Multifunctional Composite Materials
- Analysis of Nanostructures
- Design and Applications of Nanoengineered Superhydrophobic/Superhydrophilic Structures
- Creative Design

Research Keywords

Characterization of Mechanical, properties, Smart Skin StructuresNanohoneycomb and Nanofiber, Array Structures, Super-hydrophobicity/hydrophilicity,Creative Design

Industrial and Management Engineering

Ko, Young Myoung / 고영명

Education 2011: Ph.D., Texas A&M University
2000: M.S., Seoul National University
1998: B.S., Seoul National University

E-mail youngko@postech.ac.kr
Homepage http://www.lstlab.org/

Major Research Achievements

▪ Developed an distributed algorithm for energy-efficient data centers. The paper was accepted for the IFIP WG 7.3 Performance 2014 conference (one of the highly competitive conferences in the computer performance analysis field) and published in Performa

Research Interests

▪ Analysis and optimization of large-scale systems
▪ Planning and operations of energy-efficient data centers
▪ Maintenance policies for large-scale wind/solar systems

Research Keywords

Applied probability, Queueing theory, Optimization, Large-scale systems, Energy efficiency/systems

Kim, Kwang Soo / 김광수

Education 1985: Ph.D., University of Central Florida
1979: M.S., Seoul National University
1977: B.S., Seoul National University

E-mail kskim@postech.ac.kr
Homepage http://mustard.postech.ac.kr/

Major Research Achievements

▪ Creation of New Business Opportunities in Product-Service Systems.
▪ Customers' Needs-Driven Planning of Research & Development
▪ Semantic Text Mining of Patents for Technology Planning

Research Interests

▪ Business Ideation
▪ R&BD Planning
▪ Patent Mining

Research Keywords

Outcome-Driven Innovation, Servitization, Machine Learning

Kim, Kwang Jae / 김광재

Education 1993: Ph.D., Purdue University
1986: M.S., KAIST
1984: B.S., Seoul National University

E-mail kjk@postech.ac.kr
Homepage http://quality.postech.ac.kr/

Major Research Achievements

- Product-Service System Development and Evaluation for Sustainable Value Creation
- Development of a System Informatics-based New Service Development Framework
- Methodologies for Enhancing the Usefulness of Quality Function Deployment (QFD)
- Multi-

Research Interests

- Quality Engineering / Management
- Service Science, Engineering and Management
- Product-Service System

Research Keywords

Quality Engineering, New Product/Service Development, Service Science, Engineering, and Management

Kim, Byung-In / 김병인

Education 2002: Ph.D., Rensselaer Polytechnic Institute
1994: M.S., POSTECH
1991: B.S., POSTECH

E-mail bkim@postech.ac.kr
Homepage https://sites.google.com/site/logisticslaboratory/

Major Research Achievements

- Routing Optimization for Waste Collection and School Bus Routing
- Development of Reassignment Based Vehicle Dispatching Rules
- Development of Generic Simulation Models for Semiconductor and Assembly Lines
- Development of PIOS (POSTECH Internet-bas

Research Interests

- Optimization
- Logistics
- Vehicle Routing Problems
- Automated Material Handling Systems
- Simulation
- Healthcare Optimization

Research Keywords

Optimization, Logistics, Simulation, Production Management, Algorithm

You, Heecheon / 유희천

Education 1999: Ph.D., Pennsylvania State University
1990: M.S., Seoul National University
1988: B.S., Seoul National University

E-mail hcyou@postech.ac.kr
Homepage http://edt.postech.ac.kr/

Major Research Achievements

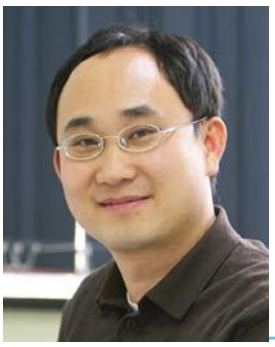
- Ergonomic Cockpit Design for Korean Utility Helicopter
- Boundary Zone Method Development for Representative Humanoid Generation
- Ergonomic Flight Suit Design
- Diagnosis System Development for Spatial Neglect Patients
- Ergonomics Program Manu

Research Interests

- Ergonomic Product Design Technology Development
- User-Centered Product Design and Development
- Work-Related Musculoskeletal Disorder Prevention
- Digital Human Modeling for Product-User Interface Design
- Virtual-Reality Application in Product

Research Keywords

Ergonomic Product Design Technology, User-Centered Product Development, Digital Human Modeling & Simulation, Usability Engineering, Musculoskeletal Disorder Prevention & Control



Jang, Bong-Gyu / 장봉규

Education 2004: Ph.D., KAIST
2000: M.S., Seoul National University
1997: B.S., Seoul National University

E-mail bonggyujang@postech.ac.kr
Homepage http://bgjang.postech.ac.kr

Major Research Achievements

- Optimal Consumption and Portfolio Choice Problem
- Credit Risk Modelling
- Financial Asset (financial derivatives, bonds) Pricing

Research Interests

- Financial Investment
- Financial Risk Management
- Financial Engineering/Mathematical Finance

Research Keywords

Investment Management, Finanacial Risk Management, Financial Engineering, Mathematical Finance, Financial Derivatives Pricing, Financial Modelling

Chang, Soo Young / 장수영

Education 1988: Ph.D., University of Michigan
1983: B.S., University of San Francisco
1982: B.S., Yonsei University

E-mail syc@postech.ac.kr
Homepage http://chaos1.postech.ac.kr/

Major Research Achievements

- Worst Case Analysis of Scheduling Algorithms
- Online and Semi-online Scheduling
- Order Consolidation
- Steel Manufacturing Management

Research Interests

- Mathematical Programming
- Scheduling Theory and Application
- Service Science
- Appropriate Technology

Research Keywords

Optimization, Scheduling, Consolidation, Network, Graph

Jun, Chi-Hyuck / 전치혁

Education 1986: Ph.D., University of California, Berkeley
1979: M.S., KAIST
1977: B.S., Seoul National University

E-mail chjun@postech.ac.kr
Homepage http://pasta.postech.ac.kr/

Major Research Achievements

- Statistical Analysis of Variational Sources in Processes Using PLS
- Algorithms for Spatial Signature Analysis Using Data Mining
- Analysis of Customer Satisfaction Using PLS-based Structural Equation Model
- Development of Calibration Techniques

Research Interests

- Data Mining: Clustering & Classification, Bioinformatics, Chemometrics
- Probability Modeling: Reliability & Quality, Performance Evaluation
- Applied Statistics: Multivariate Statistical Analysis (PCA, PLS, ICA)

Research Keywords

Artificial Intelligence; Bioinformatics; Data Mining; Industrial Statistics; Multivariate Statistics; Quality Control

Jung, Woo-Sung / 정우성

Education 2006: Ph.D., KAIST
2002: M.S., KAIST
2000: B.S., KAIST

E-mail wsjung@postech.ac.kr
Homepage http://complex.postech.ac.kr/

Major Research Achievements

- Quantitative and empirical demonstration of the Matthew effect in a study of career longevity, PNAS 108, 18-23 (2011)
- Dynamics of clustered opinions in complex networks, J. of Economic Interaction and Coordination 3, 81-88 (2008)
- Gravity model in

Research Interests

- Science and Technology Policy
- Complex System
- Complex Network
- Econo/Socio-physics

Research Keywords

Science and Technology Policy, Innovation, Complex System, Complex Network

Cho, Hyunbo / 조현보

Education 1993: Ph.D., Texas A&M University
1988: M.S., Seoul National University
1986: B.S., Seoul National University

E-mail hcho@postech.ac.kr
Homepage http://iisl.postech.ac.kr/

Major Research Achievements

- Methodology for Business Model Creation and Validation
- Validation of UNeDocs Data Model
- WEB-OPT: Scalable Distributed Simulation Software Architecture for Optimization in Web-based Applications
- Development of a Standard Evaluation Framework

Research Interests

- Business Model Creation and Evaluation
- Product Strategy and Management
- Supply Chain Strategy and Integration

Research Keywords

Business Model Creation, Service Model Creation, Business Strategy and Innovation, Manufacturing Management, Manufacturing Strategy, New Product Development, Supply Chain Management, Logistics, Systems Integration, e-Business

Choi, In Jun / 최인준

Education 1991: Ph.D., University of Texas at Austin
1987: M.S., University of Texas at Austin
1981: B.S., Seoul National University

E-mail injun@postech.ac.kr
Homepage http://pkm.postech.ac.kr/

Major Research Achievements

- Terminability & Compensatibility of Cycles in Business Processes with a Process-Oriented Trigger
- An Integration Architecture for Knowledge Management System and Business Process Management System
- On Resolving Schematic Heterogeneity in Multidata

Research Interests

- Business Process and Workflow Management: Integrated Process Management, Analysis & Optimization of Process and Organization,
- Database: Business Intelligence and Database Application, Social Network Analysis
- Management Information System : e-B

Research Keywords

Business Process Management(BPM), Business Process Reengineering(BPR), Workflow Knowledge Management(KM), Organization Design Process Innovation, Management Information System(MIS), System Integration, Database, e-

Han, Sung Ho / 한성호

Education 1991: Ph.D., Virginia Polytechnic Institute & State University
1985: M.S., Seoul National University
1983: B.S., Seoul National University

E-mail shan@postech.edu

Homepage http://ui.postech.ac.kr/

Major Research Achievements

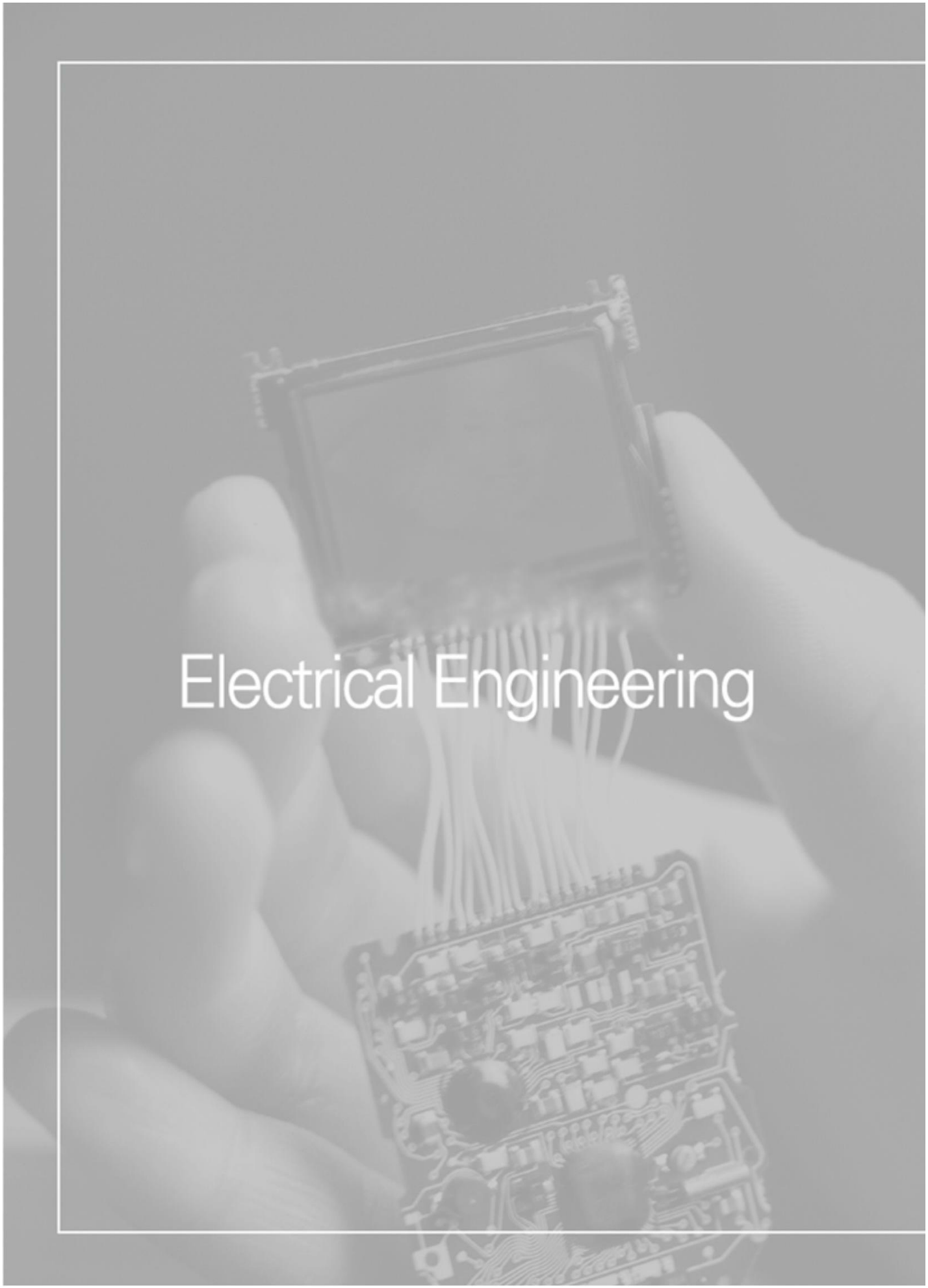
- Usability metrics for audio/visual electronic products
- Input methods for driver information systems
- Usability evaluation processes
- Evaluation of affective product design

Research Interests

- Human-Computer Interaction
- Usability Engineering
- Affective/Adaptive User Interface Design
- User Interface Design for Mobile Devices

Research Keywords

HCI, Usability Engineering, User Experience, Affective Engineering, User Interface for Mobile Devices


Electrical Engineering

Kang, Bong Koo / 강봉구

Education 1986: Ph.D., University of California, Berkeley
1984: M.S., University of California, Berkeley
1976: B.S., Kyungpook National University

E-mail bkkang@postech.ac.kr

Homepage http://ee.postech.ac.kr

Major Research Achievements

- Single scan method for driving plasma display panel(PDP)
- FMCW altitudemeter
- Methods for measuring effective channel length for nano-scale MOSFETs
- Local dimming methods for LCD using EEFL BLU

Research Interests

- Semiconductor Device Modeling and Characterization
- Drive Circuits for Displays
- High Power Circuits

Research Keywords

Si devices, TFT, LCD, PDP, Display component/Devices, 3D

Kwon, Bong Hwan / 권봉환

Education 1987: Ph.D., KAIST
1984: M.S., KAIST
1982: B.S., Kyungpook National University

E-mail bhkwon@postech.ac.kr

Homepage http://eclab.postech.ac.kr/

Major Research Achievements

- Development of high stable, high efficient power supply
- Development of UPS with high efficiency and high power factor
- Development of photovoltaic PCS
- Flat panel display: Development of PDP/LCD power circuit

Research Interests

- Renewable energy power circuit with high efficiency
- Photovoltaic power conditioning system
- High performance power conversion circuit

Research Keywords

Power conditioning system, Power supply, Power conversion circuit

Kim, Kyung-Tae / 김경태

Education 1999: Ph.D., POSTECH
1996: M.S., POSTECH
1994: B.S., POSTECH

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Major Research Achievements

- Development of ISAR imaging algorithms for real-flying aircraft
- Development of SAR motion compensation algorithms for Korean MUAV
- Development of SAR ATR algorithms
- Development of efficient RCS prediction code for military ships and aircraft

Research Interests

- Radar Signal Processing (Detection, SAR/ISAR imaging)
- NCTR(Non-Cooperative Target Recognition)/ATR(Automatic Target Recognition)
- Radar System Design and Analysis
- Numerical Electromagnetics (RCS, EMI/EMC, Antenna)

Research Keywords

Radar system, SAR/ISAR, NCTR/ATR, RCS(Radar Cross Section), Numerical Electromagnetics

Kim, Byungsub / 김병섭

Education 2010: Ph.D., MIT
2004: M.S., MIT
2000: B.S., POSTECH

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Major Research Achievements

- Invention of Decision Feedback Equalizer with Infinite Impulse Response Filter
- Invention of Charge-Injecting Pre-distortion Transmit Equalizer
- Development of the first Co-optimization and Circuit Synthesis Software for High-Speed transmitter

Research Interests

- Analog/Mixed-Signal/Digital Circuit Design
- Computer-Aided Design
- Emerging Technology

Research Keywords

High-Speed I/O, Resistive Memory, Glucose Sensor Circuit

Kim, Sang Woo / 김상우

Education 1990: Ph.D., Seoul National University
1985: M.S., Seoul National University
1983: B.S., Seoul National University

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Homepage http://icsl.postech.ac.kr/

Major Research Achievements

- Defect Detection and Information Recognition Algorithms for Steel Products
- Localization Algorithms of mobile agents
- Optimization Algorithm : Digital Encoding Algorithm for Searches (DEAS)

Research Interests

- Optimal Control and Optimization Algorithm
- Steel Making Process Automation, Instrumentation and Control
- Adaptive Filtering
- Fault and Defect Detection

Research Keywords

Optimal control and optimization, Steelmaking process control and automation, Adaptive filtering, Localization of mobile robot, Fault detection of motors, SoC, SoH, and Sof of BMS/ESS

Kim, Young Soo / 김영수

Education 1984: Ph.D., University of Kansas
1980: M.S., University of Kansas
1974: B.S., Seoul National University

E-mail ysk@postech.ac.kr
Homepage http://msl.postech.ac.kr/

Major Research Achievements

- Development of Microwave Remote Sensing Instrumentations (SAR, Scatterometer, Altimeters)
- Development of High Power(50kw) CW RF system for Pohang Light Source

Research Interests

- Microwave Remote Sensing, Radars, SAR
- EMI/EMC related research, radiation modelling and circuit optimization
- Spectrum Engineering

Research Keywords

Remote Sensing, EMI/EMC, Radar Sensors, SAR Sensors, Signal Processing, EM Environment, Spectrum Engineering

Kim,, Young Hwan / 김영환

Education 1988: Ph.D., University of California, Berkeley
1985: M.S., University of California, Berkeley
1977: B.S., Kyungpook National University

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Homepage http://wensy.postech.ac.kr/

Major Research Achievements

- SoC Design Software
- ASIP-based PDP Controller

Research Interests

- SoC Design Methodology with Emphasis on Statistical Design and MPSoC/GPGPU Systems
- Image Processing System for Display Applications (LCD, PDP, E-paper, LED)
- Image Processing System for Computer Vision Applications

Research Keywords

SoC, Digital Circuits, VLSI CAD, LCD, PDP, E-paper, LED, Display, Computer Vision

Kim, Ohyun / 김오현

Education 1983: M.S. and Ph.D., KAIST
1977: B.S., Seoul National University

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Homepage http://and.postech.ac.kr/

Major Research Achievements

- EUV flare study
- graphene growth
- organic NVM

Research Interests

- metal oxide TFT for FPD
- Extreme UltraViolet lithography
- graphene FETs
- Nano CMOS Devices

Research Keywords

Nano CMOS, Metal oxide TFT, Graphene FET, EUV mask

Nam, Kwang Hee / 남광희

Education 1986: Ph.D., University of Texas at Austin
1982: M.S., Seoul National University
1980: B.S., Seoul National University

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Homepage http://cmdlab.postech.ac.kr/

Major Research Achievements

- A Development of an AC Motor Vector Drives for an Electrical Vehicle
- Development of a General Purpose 1MW GTO Inverter
- Development of 100kW IGBT Sensorless Drive for Wound Induction Motors for Cranes
- Development of vector controller for low

Research Interests

- Power Electronics/Motor Coatrol : Inverter, Converter, Electric Vehicle System
- Motor Design : Induction Motor, Synchronous Motor, Linear Motor, high-speed Motor

Research Keywords

Motor Design, Motor Control, Inverter, Electric Vehicle, Power converter

Park, PooGyeon / 박부견

Education 1995: Ph.D., Stanford University
1990: M.S., Seoul National University
1988: B.S., Seoul National University

E-mail ppg@postech.ac.kr
Homepage http://spac.postech.ac.kr

Major Research Achievements

- Robust Fuzzy Control Theory, Applications, and S/W Development
- Wireless-Multimedia Agent System Development
- Development of Roadway-Departure Prevention/Warning System and HILS
- PC-based Multi-robot Systems
- Pattern Recognition in LCD modul

Research Interests

- Robust, LPV, RHC Control Theories
- Robust Fuzzy and Soft-Computing Software
- Fast Algorithms for Signal Processing
- Protocol Stack and Wireless Area Network Applications

Research Keywords

Signal Processing, Digital Signal Processing, Adaptive Filters, Robust Control, Embedded Control

Park, Wee Sang / 박위상

Education 1986: Ph.D., University of Wisconsin-Madison
1982: M.S., University of Wisconsin-Madison
1974: B.S., Seoul National University

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Homepage http://antenna.postech.ac.kr

Major Research Achievements

- Metamaterial small antennas
- Radiation and coupling of discontinuities
- Coils for wireless power tranfer
- RF propagation and coupling in power lines
- Radiated emission of LSI

Research Interests

- RF susceptibility anlysis of LSI
- Adaptive design of wireless power transfer system
- Coupler analysis for power line communications
- Diagnosis of cable failure
- Microwave heating and thawing

Research Keywords

Antenna, microwave, wireless power transfer, metamaterial

Park, Hong June / 박홍준

Education 1989: Ph.D., University of California, Berkeley
1981: M.S., KAIST
1979: B.S., Seoul National University

E-mail hjpark@postech.ac.kr
Homepage http://analog.postech.ac.kr/

Major Research Achievements

- Development of 50mA USB 2.0 transceiver chip
- Development of ultrasound beamformer chip for medical imaging
- Development of display-noise-insensitive touch sensor IC
- Development of SIGMA SPICE: a mixed-mode circuit simulation program with graphic

Research Interests

- High-speed low-power low-EMI interface circuits (DRAM)
- Circuits and algorithms for hearing aids and PSAPs
- Low-power analog & ADC circuits for ultrasound & audio sensors
- USB interface for mobile devices

Research Keywords

Analog circuits, high-speed interface, low power, signal integrity

Song, Woo Jin / 송우진

Education 1986: Ph.D., Rensselaer Polytechnic Institute
1981: M.S., Seoul National University
1979: B.S., Seoul National University

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Homepage http://cspl.postech.ac.kr/

Major Research Achievements

- Active noise control systems.
- Channel equalization for digital TV receivers.
- SAR(Synthetic Aperture Radars) signal processing

Research Interests

- Adaptive Signal Processing
- Digital Image Processing
- Display Technology

Research Keywords

Video Signal, 3D Display, LCD, Mobile Computing, Digital Image

Sim, Jae-Yoon / 심재윤

Education 1999: Ph.D., POSTECH
1995: M.S., POSTECH
1993: B.S., POSTECH

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Homepage http://analog.postech.ac.kr/

Major Research Achievements

- 650Mbps-to-8Gbps referenceless CDR for high-speed links
- 1.3uW 100KS/s 10b ADC for sensor interface
- 0.63ps-resolution 11b time-to-digital converter and all-digital PLL
- Single-chip microwave-excited plasma generator

Research Interests

- High-speed and low-power serial/parallel links
- PLL and DLL
- Data converters
- Circuits for biomedical applications

Research Keywords

SoC, Integrated circuits, VLSI, Analog circuits, Serial links

Yang, Kyeongcheol / 양경철

Education 1992: Ph.D., University of Southern California
1988: M.S., Seoul National University
1986: B.S., Seoul National University

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Homepage http://csdl-lab.postech.ac.kr/

Major Research Achievements

- Analysis and design of LDPC codes
- Development of quasi-orthogonal sequences for CDMA systems
- Design of space-time codes for multiple antennas
- Analysis and design of frequency-hopping sequences

Research Interests

- Error-control techniques for digital communications
- Wireless communication systems
- Signal design for CDMA/OFDM/OFDMA systems

Research Keywords

Channel coding, information theory, iterative decoding, signal design, signal processing

Oh, Se Young / 오세영

Education 1981: Ph.D., Case Western Reserve University
1978: M.S., Case Western Reserve University
1974: B.S., Seoul National University

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Homepage http://isl.postech.ac.kr/

Major Research Achievements

- 4-Vehicle Platooning System Development [first time in Korea]
- Driver Assistance System based on 360 degree All Around Environment Sensing
- NEOSLAM [Neuro-Evolutionary Optimizing SLAM-Simultaneous Localization and Mapping] that Automatically Learns

Research Interests

- Computational Intelligence (CI): Neural Networks, Evolutionary and Particle Swarm Optimization
- Mobile Robotics and Intelligent Vehicles: Unmanned Aerial Vehicles (UAV) - Vehicle Localization and Navigation
- Face Analysis based upon a 3D Facial Mod

Research Keywords

Computational Intelligence, Mobile Robot Navigation, SLAM, 3D Mapping, Intelligent Vehicles, Deep Learning Neural Network (DNN), Nature-Inspired Optimization, Swarm Intelligence, Particle Swarm Optimization (PSO)

Won, Sang Chul / 원상철

Education 1985: Ph.D., University of Iowa
1976: M.S., Seoul National University
1974: B.S., Seoul National University

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Homepage http://controllab.postech.ac.kr

Major Research Achievements

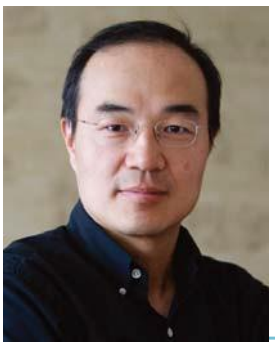
- Development of Active Torque Controller for 1P Rotary Compressor
- Deveopment of measurement system for defect depth of automotive steel surface using photometric stereo
- Modeling for optimal defrost control of refrigerator
- Crane automation usi

Research Interests

- Linear and Nonlinear Control System
- Uncertain Time Delay System
- Steel Process Control and Automation
- Robot Control

Research Keywords

Steel Process, Control Automation, Nonlinear System, Robust Control,Time Delay System, Robot Motion Control , RobotForce Control, Optimal Control



Lee, Sung Gu / 이승구

Education 1990: Ph.D., University of Michigan
1987: M.S., University of Michigan
1985: B.S., University of Kansas

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Homepage http://esa.postech.ac.kr/

Major Research Achievements

- Research on Test Algorithms and Circuits for Flash and DRAM Memories
- Development of Time Synchronization Methods for Wireless Sensor Networks
- Research on Communication Methods for Wireless Sensor Networks
- Research on Grid Task Scheduling Met

Research Interests

- Wireless Sensor Networks (Coverage, Time Synchronization, QoS, Algorithms)
- Fault-Tolerant Computing (Testing, Fault-Tolerant Communication, Checkpoint/Restart)
- Cloud Computing, Cluster and Grid Computing (Algorithms, Task Scheduling)
- Real-Ti

Research Keywords

Embedded Systems, Memory Testing, Wireless Sensor Networks (WSN), Cloud Computing, Cluster and Grid Computing

Lee, Jeong-Soo / 이정수

Education 1996: Ph.D., POSTECH
1993: M.S., POSTECH
1991: B.S., POSTECH

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Homepage http://ndp.postech.ac.kr/

Major Research Achievements

- Synthesis and characterizations of inorganic nanowires
- DC and RF performances of nanodevices
- Noise characteristics of nanodevices
- Si-Nanowire transistors for biosensors and chemical sensors

Research Interests

- Fabrication and Characterization of nanoscale devices
- Noise and reliability of nanodevices
- Nanomaterials and nanostructures for biosensor applications

Research Keywords

Nanodevices, Nanowires, Nanostructure materials, Bio-chips, Sensors

Im, Gi Hong / 임기홍

Education
1987: Ph.D., KAIST
1983: M.S., KAIST
1980: B.S., Seoul National University

E-mail igh@postech.ac.kr
Homepage http://crl.postech.ac.kr/

Major Research Achievements

- Transmission techniques for 4G wireless communication systems
- Development of ADSL/VDSL communication systems
- Development of High-speed LAN (ATM-LAN) transmission systems
- Communication systems for Ubiquitous Network

Research Interests

- High-speed digital communication systems for wired and wireless applications (design and implementation)
- Multicarrier (OFDM/DMT) and single-carrier (QAM/CAP) transmission techniques
- Multiuser wireless communications
- Design of VLSI

Research Keywords

Mobile Wireless Communication Systems and Equipments, Mobile Wireless Communication modules and Devices, Access Networks, Home Networking Equipments, Wired and Wireless Home Networking Technologies

Jeong, Hong / 정홍

Education 1988: Ph.D., Massachusetts Institute of Technology
1979: M.S. KAIST
1977: B.S., Seoul National University

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Homepage http://aspl.postech.ac.kr/

Major Research Achievements

- Realtime Stereo Vision for Mobile Robots, Smart Cars
- Realtime Architecture for Multiview Stereo TV
- Realtime Speech Recognition for Mobile Robots

Research Interests

- Recognition Engineering: Multimedia Signal Processing, Image Processing/Computer Vision, Speech Signal Processing/Speech Recognition, Radar/Sonar Signal Processing
- Parallel Architecture with ASICS/FPGA

Research Keywords

Computer Vision, Speech Recognition, Robotics, Smart Cars, HRI, 3D TV

Cho, Joon Ho / 조준호

Education 2001: Ph.D., Purdue University
1997: M.S., Purdue University
1995: B.S., Seoul National University

E-mail jcho@postech.ac.kr

Homepage http://cisl.postech.ac.kr/cisl/jcho/

Major Research Achievements

- Optimal chip waveform design for DS-CDMA
- Optimal power allocation and waveform design for overloaded DS-CDMA and FDM/A
- Cyclic water filling for cyclostationary Gaussian noise channel and its application to cognitive radio design
- Optimal full

Research Interests

- Digital Communications and Statistical Signal Processing
- Information Theory
- Theoretical and Experimental Channel Modeling
- RF Relay Design

Research Keywords

Radio Transmission Technology, Physical-Layer Digital Communications, Mobile Wireless Communications

Han, Haewook / 한해욱

Education
1995: Ph.D., University of Illinois at Urbana-Champaign
1988: M.S., Seoul National University
1986: B.S., Seoul National University

E-mail hhan@postech.ac.kr
Homepage http://nbtp.postech.ac.kr/

Major Research Achievements

- THz Photonic Crystal Fiber
- THz Near-Field Nanoscope
- Real-Time THz Time-Domain Spectroscopy
- High-Precision THz Spectroscopy of Quantum Matters and Biomolecules
- Photonic Crystal Microcavity Light Emitting Diodes

Research Interests

- Nano-Bio Photonics
- Terahertz Photonics
- Terahertz Dynamics of Quantum Matters and Biomolecules
- Semiconductor Lasers and LED Displays

Research Keywords

Nano-Bio Photonics, Terahertz Photonics, Terahertz Dynamics of Quantum Matters and Biomolecules, Semiconductor Lasers, LED Displays

Hong, Ki Sang / 홍기상

Education
1984: Ph.D., KAIST
1979: M.S., KAIST
1977: B.S., Seoul National University

E-mail hongks@postech.ac.kr
Homepage http://iip.postech.ac.kr/

Major Research Achievements

- Image Stabilization for CMOS Image Sensor (CIS) camera
- AR-Synthesis of video and graphics with shade and shadow
- 3D Reconstruction from video using self-calibration of camera

Research Interests

- Image and Video Processing
- Computer Vision
- Robotics

Research Keywords

Object detection and recognition, Human computer interface, Robot vision, Camera/camcorder

Computer Science and Engineering

Kim, Dai Jin / 김대진

Education 1991: Ph.D., Syracuse University
1984: M.S., KAIST
1981: B.S., Yonsei University

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Homepage http://imlab.postech.ac.kr/

Major Research Achievements

- Real-time Face Analyzer
- Face/Gaze/Facial Expression/Gesture Recognition System
- Visual Interface for Intelligent HRI, HMI, and HVI
- Gesture-based Multi-Spatial Touch Interface for Smart Phones or Smart TV

Research Interests

- Biometrics
- Video Surveillance
- Face Analysis
- Gesture and Human Motion Analysis
- Human Robot(Machine, Vehicle) Interaction

Research Keywords

Image and Vision Processing, Pattern Analysis and Machine Intelligence, Computer and Machine Vision, Visual Surveillance, Natural and Intelligent UI and UX, Robotics

Kim, Jangwoo / 김장우

Education 2008: Ph.D., Carnegie Mellon University
2000: M.S., Cornell University
1997: B.S., Cornell University

E-mail jangwoo@postech.ac.kr
Homepage https://hpc.postech.ac.kr/

Major Research Achievements

- Multi-Core, Multi-Thread CPU Design (Sun Microsystems)
- Low-Cost Data Center Design (Sun Microsystems)
- Fault-Tolerant Server Design (IEEE/ACM MICRO, ASPLOS)
- Reliable Memory Design (IEEE/ACM MICRO, ISCA)

Research Interests

- Computer Architecture
- System Modeling, Simulation and Analysis
- Cloud Computing / Datacenter
- GPGPU Computing Security

Research Keywords

CPU Architecture, System Simulation, Cloud Computing, GPGPU Computing, HW/SW Co-design

Kim, Jong / 김종

Education 1991: Ph.D., Pennsylvania State University
1983: M.S., KAIST
1981: B.S., Hanyang University

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Homepage https://hpc.postech.ac.kr/

Major Research Achievements

- Adaptive Failure-handling Framework for Composite Web Services
- A Framework for Potent and Stealthy Binary Obfuscation
- Redistributing time-based DRM rights between consumer devices for content sharing
- Run-time Detection of Infected Executable

Research Interests

- System, Network, Information Security
- Privacy Protection
- Dependable computing
- Embedded System/Software
- Parallel & Distributed Computing

Research Keywords

Network System Security, Service/Application Security, Information Protection, Security Attack, Embedded Software, Privacy Protection

Kim, Cheeha / 김치하

Education 1986: Ph.D., University of Maryland, College Park
1984: M.S., University of Maryland, College Park
1974: B.S., Seoul National University

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Homepage https://nds.postech.ac.kr/

Major Research Achievements

- Energy-efficient Data Aggregation Scheme for Sensor Networks
- Control Channel Establishment in Cognitive Radio
- Medium Access Control Schemes for Wireless LAN
- Rendezvous Scheme for Multichannel Access Networks

Research Interests

- Computer Networks
- Wireless/Mobile Networks
- Opportunistic Networks
- Future Internet

Research Keywords

IEEE 802.11ax, Wireless/Mobile Communications, Sensor Networks, Network Architecture, Future Internet

Park, Sungwoo / 박성우

Education 2005: Ph.D., Carnegie-Mellon University
1998: M.S., KAIST
1996: B.S., KAIST

E-mail gla@postech.ac.kr
Homepage http://pl.postech.ac.kr/

Major Research Achievements

- Design and implementation of a probabilistic programming language and its application to robotics
- Development of a type system for safe parallel computation
- Design and implementation of a functional hardware description language

Research Interests

- Parallel programming
- Deductive software verification
- Type theory
- Logic in computer science

Research Keywords

Programming language

Park, Chan Ik / 박찬익

Education 1988: Ph.D., KAIST
1985: M.S., KAIST
1983: B.S., Seoul National University

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Homepage http://sslab.postech.ac.kr/

Major Research Achievements

- DataFirewall: Protecting enterprise data by open source virtualization technology
- uPC: Application mobility support based on USB-based flash devices
- ACON: Adaptive control of kernel thread scheduling to improve real-time in Linux
- PosFFS2

Research Interests

- Storage networks, mobile storage
- Secure computing, System virtualization
- Embedded software, Real-time Linux

Research Keywords

Mobile computing platform, Trusted computing, Snapshot file system, Personal data management

Suh, Young Joo / 서영주

Education 1996: Ph.D., Georgia Institute of Technology
1987: M.S., Hanyang University
1985: B.S., Hanyang University

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Homepage http://monet.postech.ac.kr/

Major Research Achievements

- Efficient Scheduling Schemes in WiBro Systems
- Supporting Vertical Handover among WLAN/WiBro/3GE Networks
- Seamless Handover Architecture in Heterogeneous Wireless Networks
- Ad-hoc Mode Communication Technology based on WPANs

Research Interests

- Wireless Mobile Networks
- 4G Mobile Networking Systems
- Mobile Multicast, Mobile IP, Vertical Handovers
- QoS for Mobile Networks

Research Keywords

Wireless communication system, Wireless access network, Network architecture design, USN technology, Communication network

Song, Hwangjun / 송황준

Education 1999: Ph.D., University of Southern California
1992: M.S., Seoul National University
1990: B.S., Seoul National University

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Homepage http://mcnl.postech.ac.kr/

Major Research Achievements

- Rate Control Algorithms for Video Communication
- Multimedia Caching Algorithms
- Mobile IPTV/IPTV Channel Control Algorithms
- P2P Overlay Video Multicast System
- Cross Layer Optimized Video Streaming over multi-hop Mobile Ad Hoc Networks

Research Interests

- Multimedia Networking
- Video Communication System
- Future Internet/Network
- Quality-of-Service/Quality-of-Experience over Wireless/Wired Networks
- P2P Overlay Network
- IPTV/Mobile IPTV
- Ad-Hoc Network, Sensor Network
- Cross layer op

Research Keywords

Broadband Convergence Network Service/Control, Digital Broadcast Communication & Broadcast Convergence, Digital Broadcast Mobile Broadcast, Mobile Communications Terminals, Wired/Wireless Home Networking Technology, Multimedia

Ahn, Hee-Kap / 안희갑

Education 2001: Ph.D., Universiteit Utrecht
1998: M.S., POSTECH
1996: B.S., Kyungpook National University

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Homepage http://tcs.postech.ac.kr/

Major Research Achievements

- 2D/3D Geometric Shape Matching Algorithms
- Geometric Shape Approximation
- Geometric Algorithms for Manufacturing (Casting Process)
- Design and Implementation of Networked Virtual Environments Based on PC Cluster.

Research Interests

- Computational and Discrete Geometry
- Algorithms
- Data Structures
- Theory of Computation

Research Keywords

Theoretical Computer Science, Algorithms, Discrete Geometry, Computational Geometry

Yu, Hwanjo / 유환조

Education 2004: Ph.D., University of Illinois at Urbana-Champaign
1997: B.S., Chung-Ang University

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Homepage https://sites.google.com/site/postechdm/

Major Research Achievements

- Single-Class Classification and Active Learning
- SVM Rank Learning and Processing
- Privacy-Preserving Data Mining
- Data Retrieval and Search Engines

Research Interests

- Data Mining and Machine Learning
- Databases and Information Retrieval
- Biomedical Informatics

Research Keywords

Database, Artificial Intelligence, Information Retrieval

Lee, Gary Geunbae / 이근배

Education 1991: Ph.D., University of California, Los Angeles(UCLA)
1986: M.S., Seoul National University
1984: B.S., Seoul National University

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Homepage http://nlp.postech.ac.kr/home/

Major Research Achievements

- Unlimited Vocabulary TTS System (Korean, Chinese, English)
- Spoken Dialog System (Korean, English)
- Intelligent Dialog-based CALL System (English)
- English Speech Assessment and Assistant System (for Korean)

Research Interests

- Speech and Natural Language Processing
- Spoken Dialog Systems
- Computer Assisted Language Learning
- Text-mining and Information Retrieval

Research Keywords

Artificial Intelligence, Human Computer Interface, Natural Language Processing, Information Retrieval, Computational Linguistics

Lee, Seungyong / 이승용

Education 1995: Ph.D., KAIST
1990: M.S., KAIST
1988: B.S., Seoul National University

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Homepage http://graphics.postech.ac.kr/introduction/

Major Research Achievements

- Image and video deblurring
- Image and video stylization
- Hatching of dynamic 3D objects
- Animation mesh processing

Research Interests

- Computer graphics, Image processing

Research Keywords

Computer graphics, Image and video processing, Non-photorealistic rendering, Digital geometry processing

Lee, Jong-Hyeok / 이종혁

Education 1988: Ph.D., KAIST
1982: M.S., KAIST
1980: B.S., Seoul National University

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Homepage http://kle.postech.ac.kr/

Major Research Achievements

- LDK-K/J/C (Language Development Kit for Korean, Japanese, Chinese)
- COBALT-JK (Bi-directional Translator between Korean & Japanese)
- Risk Simulator for Patent Infringement
- Translator of Korean into Korean Sign Language

Research Interests

- Multilingual Language Processing (for CJK & English)
- Machine Translation (MT)
  - Statistical/Neural/Hybridl MT
  - Text simplification/Normalization
- Information Retrieval & Text Mining
- Deep Learning for NLP & MT

Research Keywords

Natural Language Processing, Computational Linguistics, Machine Translation, Information Retrieval, Text Mining

Choi, Seungmoon / 최승문

Education 2003: Ph.D., Purdue University
1997: M.S., Seoul National University
1995: B.S., Seoul National University

E-mail choism@postech.ac.kr
Homepage www.postech.ac.kr/~choism

Major Research Achievements

- Mobile Haptic Interface for Large Virtual Environments
- Haptic Augmented Reality
- Haptic Disturbance Paradigm for Motor Skill Learning
- Vibrotactile Rendering and Perception
- Authoring and Synthesis of Haptic Content

Research Interests

- Haptics
- Virtual Reality, Human-Computer Interaction, and Robotics
- Applied Perception

Research Keywords

Haptics, Virtual Reality, Human Computer Interface, Applied Perception

Choi, Seungjin / 최승진

Education 1996: Ph.D., University of Notre Dame
1989: M.S., Seoul National University
1987: B.S., Seoul National University

E-mail seungjin@postech.ac.kr

Homepage http://mlg.postech.ac.kr/~seungjin

Major Research Achievements

- Bayesian models for recommendation
- Variational Bayesian matrix factorization
- Tree-based inference with normalized random measures
- Locality-sensitive binary embedding
- Deep multi-view learning

Research Interests

- Random projections for binary embedding
- Random measures for graph
- Approximate Bayesian inference
- Bayesian multi-task and multi-view learning
- Bayesian optimization

Research Keywords

Approximate inference, Bayesian nonparametric models, deep learning, matrix factorization, probabilistic graphical models, statistical machine learning

Han, Bohyung / 한보형

Education 2005: Ph.D., University of Maryland
2000: M.S., Seoul National University
1997: B.S., Seoul National University

E-mail bhhan@postech.ac.kr

Homepage http://cv.postech.ac.kr/

Major Research Achievements

- Bohyung Han, Seong-Wook Joo and Larry Davis, Multi-Camera Tracking with Adaptive Resource Allocation, International Journal of Computer Vision, Vol. 91(1), 45-58, 2011
- Bohyung Han, Ying Zhu, Dorin Comaniciu and Larry Davis, Visual Tracking by Continu

Research Interests

- Computer Vision
- Machine Learning
- Pattern Recognition

Research Keywords

Image and Video Understanding, Human Motion Analysis, Statistical Modeling and Estimation, Optimization

Han, Joon Hee / 한준희

Education 1988: Ph.D., University of Michigan, Ann Arbor
1981: M.S., Seoul National University
1979: B.S., Hanyang University

E-mail joonhan@postech.ac.kr
Homepage http://cvlab.postech.ac.kr/lab/members.php

Major Research Achievements

- Visual Surveillance System
- Fuzzy Hough Transform
- Distance Accumulation Feature
- Visual Inspection System

Research Interests

- Computer Vision
- Video Analysis
- Visual Surveillance
- Medical Image Analysis

Research Keywords

Computer Vision, Video Analysis, Pattern Recognition, Video Surveillance, Medical Image Analysis

Hong, Sung Je / 홍성제

Education 1983: Ph.D., The University of Illinois at Urbana-Champaign
1979: M.S., Iowa State University
1973: B.S., Seoul National University

E-mail sjhong@postech.ac.kr
Homepage http://hpc.postech.ac.kr/

Major Research Achievements

- Development of a chip planner
- giga memory design with self-checking
- Load Balancing in the giga-bit network and fault-Tolerance
- Development & Parallel algorithms for scientific calculation
- Development of High-speed memory testing Techniqu

Research Interests

- Parallel Processing
- Fault-Tolerance
- VLSI Testing
- Computer-Aided VLSI Design
- VLSI Architectures
- Information Security

Research Keywords

Semiconductor Device/System, Memory Design/Testing, Cloud Computing/Grid Computing, Information Security, Network Security, RFID Security, Mobile Communication Security, Mobile Communication Technology

Hong, James Won-Ki / 홍원기

Education 1991: Ph.D., University of Waterloo
1985: M.S., University of Western Ontario
1983: HBSc., University of Western Ontario

E-mail jwkhong@postech.ac.kr

Homepage http://dpnm.postech.ac.kr/~jwkhong

Major Research Achievements

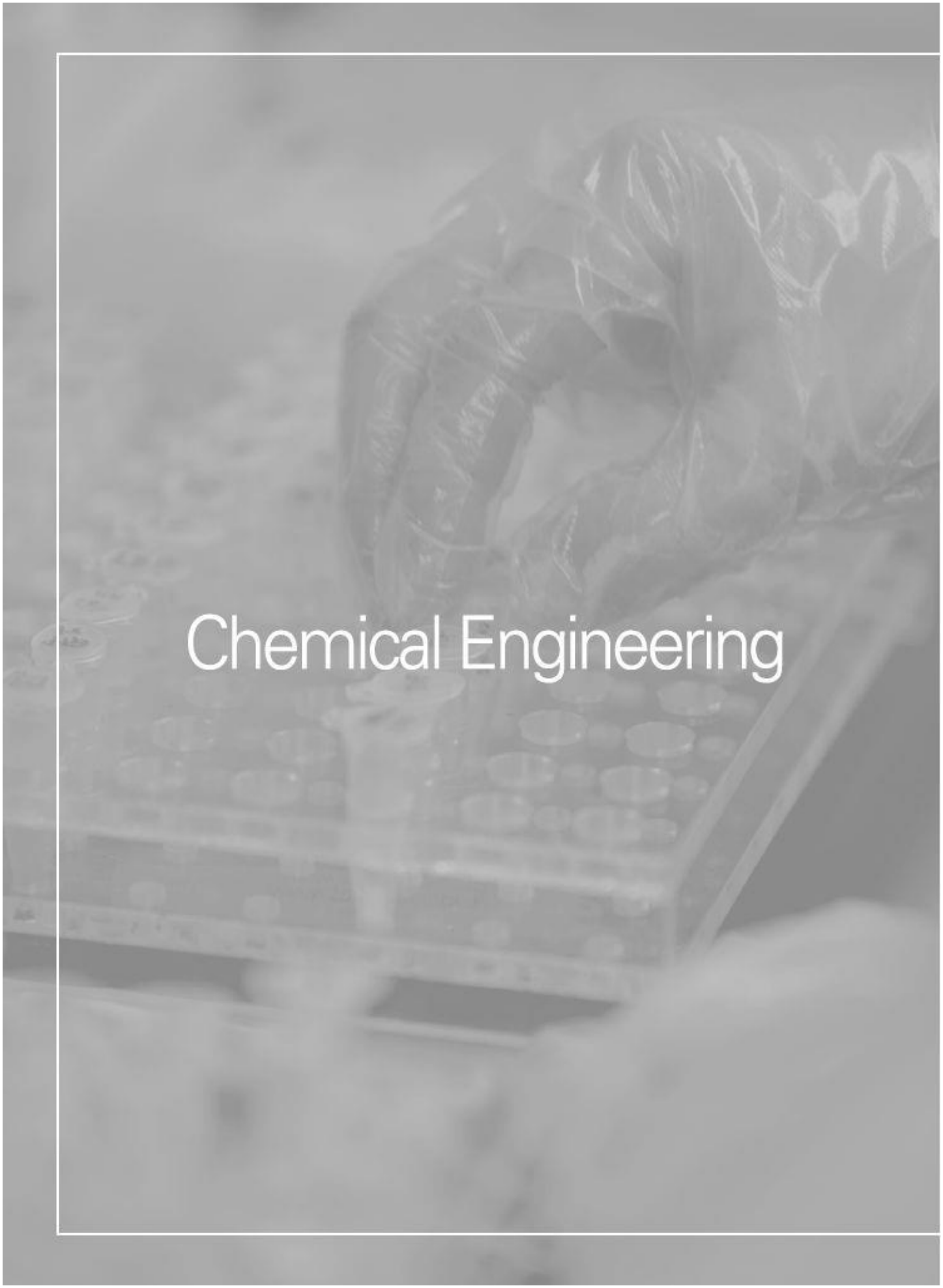
- Autonomic Management for Personalized Handover Decisions in Heterogeneous Wireless Networks
- BGP Hijacking Detection
- Dimensioning IPTV VoD Services
- Broadband Power Line Communication Network Management System
- Characteristic Analysis & Appli

Research Interests

- Software-Defined Networking
- Network Function Virtualization
- Internet of Things
- Network Traffic Monitoring and Analysis
- Network and Systems Management
- IT Convergence Engineering
- Ubiquitous Computing (u-Healthcare, u-Environment)

Research Keywords

Network and Systems Management, Network Traffic Monitoring and Analysis, Ubiquitous Computing, IT Convergence Engineering


Chemical Engineering

Kang, In Seok / 강인석

Education 1988: Ph.D., California Institute of Technology
1980: M.S., KAIST
1978: B.S., Seoul National University

E-mail iskang@postech.ac.kr
Homepage http://cfd.postech.ac.kr/

Major Research Achievements

- Theoretical results for electrokinetics and electrowetting
- Theoretical results for the dynamics of free surface problems
- Numerical scheme development for free surface dynamics
- Optimization of PDE systems based on the variational principle

Research Interests

- Computational Green Sciences: Computational studies on the processes intended for minimal CO2 production and the processes for solar energy utilization
- Microfluidics: Electrical control of nano- to pico-liter droplets for development of droplet-based

Research Keywords

Computational Green Sciences, Microfluidics, Nanofluidics, Electrokinetics, Free Surfaces

Kim, Dong-Pyo / 김동표

Education 1991: Ph.D., Temple University
1985: B.S., Sogang University

E-mail dpkim@postech.ac.kr
Homepage http://camc.postech.ac.kr/smain.html

Major Research Achievements

- PI of "Creative Research Initiative" Project (2008-2017, 9yrs, fund > 7.0billion won)
- Selected in 100 Excellence of Year 2007 Research (Film microfluidic system), by Korean Gov.
- Selected in 100 Excellence of Year 2014 Research (On-site benign pro

Research Interests

- Fabrication of Continuous-flow Microfluidic System for Novel Chemistry
- Development of Alternative Petroleum Chemical or Environmental Benign Process
- Biorefinery Chemistry for Biomass Conversion to Chemicals & Energy

Research Keywords

Microfluidic System, Process Chemistry, Biorefinery, Biomass Conversion

Kim, Jin Kon / 김진곤

Education 1990: Ph.D., Polytechnic University, New York
1982: M.S., KAIST
1980: B.S., Seoul National University

E-mail jkkim@postech.ac.kr

Homepage http://bcp.postech.ac.kr/

Major Research Achievements

- Closed Loop Phase Behavior of Block Copolymer
- Nanoporous Membranes based on Block Copolymer
- Ultrahigh Density Array of Nanoscopic Patterns by AFM
- High conversion Efficiency Solar Cells based on Organic/Inorganic Hybrids

Research Interests

- Nano-patterning using Block Copolymer Thin Film
- Phase Behavior and Phase Transition of Block Copolymer
- Membranes for separation of Biomaterials and Virus
- Organic and hybrid Solar Cells
- Interface Analysis of Reactive Polymer Blends

Research Keywords

Nano Materials, Block Copolymer, Polymer Physics, Nanoporous Template, Viscoelasticity and Rheology of Polymer

Park, Jong Moon / 박종문

Education 1986: Ph.D., University of Manchester Institute of Sci. & Tech.
1981: M.S., Seoul National University
1979: B.S., Seoul National University

E-mail jmpark@postech.ac.kr
Homepage http://great.postech.ac.kr/

Major Research Achievements

- Marine biomass for Bioalcohol (ethanol & butanol) production
- Biological hydrogen production (Dark fermentation)
- Anaerobic wastewater treatments (sludge minimization)
- Metabolic engineering of plant secondary metabolism

Research Interests

- Biomass (Biorefinery/bioenergy) Technology
- Environmental Biotechnology
- Plant Tissue/Cell Culture Technology

Research Keywords

Environmental Biotechnology, Biomass (Biorefinery/Bioenergy), Bioprocess Control & Optimization, Plant Secondary Metabolites

Park, Chan Eon / 박찬언

Education 1986: Ph.D., Massachusetts Institute of Technology
1977: M.S., KAIST
1975: B.S., Seoul National University

E-mail cep@postech.ac.kr
Homepage http://polymer.homepcenter.co.kr

Major Research Achievements

- Histeresis of OTFT Divices
- Contact Resistance of OTFT
- Passivation of Organic Electronics
- Integrating Transistors - Organic Circuitry
- Flexible Organic Electronics
- Organic Solar Cells

Research Interests

- Organic Electronics
- Organic Thin Film Transistors(OTFT)
- Organic Light Emitting Diodes(OLED)
- Organic Photovoltaics(OPV)

Research Keywords

Organic field effect transistor(OFET), Organic photovoltaic(OPV), Passivation, Organic light emitting diode(OLED) lightening, Flexible dlsplay

Park, Taiho / 박태호

Education 2003: Ph.D., University of Cambridge
1992: M.S., POSTECH
1990: B.S., Sogang University

E-mail taihopark@postech.ac.kr
Homepage http://epolymer.homepcenter.co.kr

Major Research Achievements

- G-W Kim, J Kim, G-Y Lee, G Kang, J Lee, T Park* "A Strategy to Design a Donor-p-Acceptor Polymeric Hole Conductor for an Efficient Perovskite Solar Cell" Adv. Energy Mater. 2015, 5, 1500471. (Back Cover article)
- J Lim, T Kim, T Park* "Fast cascade ne

Research Interests

- Synthesis of conducting small molecules and polymers
- Development of energy devices and laser spectroscopic techniques
- Study in energy transfer at the interface between semiconductor and organic materials

Research Keywords

Photonic/electronic polymers, Polymer synthesis, Functional polymers, Energy materials, Polymer chemistry, Nano materials, optoelectronic devices, Laser spectroscopy

Oh, Joon Hak / 오준학

Education 2004: Ph.D., Seoul National University
2000: M.S., Seoul National University
1998: B.S., Seoul National University

E-mail joonhoh@postech.ac.kr
Homepage http://ohgroup.postech.ac.kr

Major Research Achievements

- Development of high-performance organic electronic materials
- Development of flexible and wearable sensors based on organic transistor platforms
- Synthesis of organic or polymeric functional nanomaterials and their applications
- Synthesis of nove

Research Interests

- Organic Electronics
- Flexible and Stretchable Electronics
- Soft Nanomaterials and Devices

Research Keywords

Organic field-effect transistors, organic solar cells, graphene, carbon nanotube, sensors

Yong, Kijung / 용기중

Education 1997: Ph.D., Carnegie Mellon University
1992: M.S., Yonsei University
1990: B.S., Yonsei University

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Homepage http://schema.postech.ac.kr/

Major Research Achievements

- Development of next generation memory device
- Development of SiC, ZnO nanowire device
- Development of Thin film solar cell, Quantum dot sensitized solar cell

Research Interests

- Surface chemistry of electronic materials
- Atomic Layer Deposition, Next generation memory devices, Semiconductor Nanowires
- Nanowire energy devices, Thin film solar cell (CIGS)

Research Keywords

Nanowires, Atomic Layer Deposition, Surface Chemistry, Solar Cell, Superhydrophobicity, Thin Film

Lee, Kun-Hong / 이건홍

Education 1986: Ph.D., University of Delaware
1981: M.S., KAIST
1979: B.S., Seoul National University

E-mail ce20047@postech.ac.kr
Homepage http://ce.postech.ac.kr/eng/index.php

Major Research Achievements

- Invention of "Electrochemical Porosimetry"
- Microwave synthesis of nanomaterials
- Development of Continuous QCM Method for Gas Hydrate Phase Equilibrium Study

Research Interests

- Nano Carbons
- Gas hydrates
- Microwave chemical reactions

Research Keywords

Synthesis of nanomaterials, Ocean resources, Microwave reaction engineering

Lee, Sun Bok / 이선복

Education 1981: Ph.D., KAIST
1978: M.S., KAIST
1976: B.S., Seoul National University

E-mail sblee@postech.ac.kr
Homepage http://postech.e-bizs.net

Major Research Achievements

- Industrial Application of Hyperthermophiles and Marine Extremophiles
- Optimization of Enzymatic Process for the Production of Chemicals and Drugs
- Biological Production of Biopolymers and Their Applications
- Biological CO_2Conversion using Marin

Research Interests

- Marine Biofuel Production
- Metabolism of Marine Microbes
- Synthetic Microbial Consortium
- Biocatalyst and Protein Engineering

Research Keywords

Marine biofuel, Marine bioprocess, Industrial biotechnology, Metabolic engineering, Enzyme engineering

Rhee, Shi Woo / 이시우

Education 1984: Ph.D., MIT
1976: M.S., KAIST
1974: B.S., Seoul National University

E-mail srhee@postech.ac.kr
Homepage http://lamp.postech.ac.kr/

Major Research Achievements

- Development of metal-organic chemical vapor deposition and atomic layer deposition process for electronic devices
- Organic thin film Transistors- Contact resistance and Semiconductor-insulator interfaces
- Dye sensitized solar cell materials, devic

Research Interests

- Materials and Processes for Electronic and Photonic Devices
- Photovoltaics (PV)

– Dye-sensitized solar cells, Quantum dot solar cells, Carbon electrode materials, Carbon nanodots

- Atomic layer deposition (ALD) and chemical vapor deposition (CVD)

–

Research Keywords

Solar cell, Thin films, Chemical vapor deposition, Electronic materials, Atomic layer deposition, Materials and processes for silicon devices, Electrode materials, Dye sensitized solar cell, Carbon materials

Lee, In-Beum / 이인범

Education 1987: Ph.D., Purdue University
1979: M.S., KAIST
1977: B.S., Yonsei University

E-mail iblee@postech.ac.kr

Homepage http://pse.postech.ac.kr/

Major Research Achievements

- Water Energy Audit and Retrofitting of Chemical Processes using Pinch Technology
- Integrated framework for Optional Operation in the biological wastewater treatment
- On-line Scheduling of Batch Processes
- Analysis and Classification of Biologic

Research Interests

- Process Monitoring, Synthesis, and Control of Chemical Processes
- Batch Process Scheduling and Design
- Bioinformatics & Ecoinformatics
- Heat Integration in Chemical Process

Research Keywords

Process Systems Engineering, CO2 Capture Technology, Fuel Cell

Jinwoo, Lee / 이진우

Education 2003: Ph.D., Seoul National University
2000: M.S., Seoul National University
1998: B.S., Seoul National University

E-mail jinwoo03@postech.ac.kr

Homepage http://afn.postech.ac.kr

Major Research Achievements

- High performance nanostructured electrocatalysts for formic acid fuel cells and polymer exchanged membrane fuel cells
- High Performance nanoporous electrode materials for rechargeable batteries and supercapacitors
- Hierarchically porous materials v

Research Interests

- Nano-electrocatalysts for fuel cells, CO2 conversion and water splitting
- Designed nanoporous materials for energy storages
- Inorganic-block copolymer hybrid materials
- Enzyme mimetic catalysts

Research Keywords

Nanostructured Materials, Solar Cells, Fuel Cells, Energy, Nanomaterials, Hybrids, Biotechnology, Catalyst, Mesoporous Materials, Nanocrystals

Jeon, Sangmin / 전상민

Education 2002: Ph.D., University of Illinois, at Urbana-Champaign
1993: M.S., POSTECH
1991: B.S., POSTECH

E-mail jeons@postech.ac.kr
Homepage http://smart.postech.ac.kr/

Major Research Achievements

- Ultra-rapid detection of pathogenic bacteria, antibiotics and toxins
- Facile detection of biomarkers associated with cancers and cardiac diseases
- Smart gas sensors

Research Interests

- Smart sensors (Chemical/ bio sensors)
- Smart materials

Research Keywords

Health technology, smart materials, smart sensors

Jung, Gyoo Yeol / 정규열

Education 1998: Ph.D., Seoul National University
1992: M.S., Seoul NationalUniversity
1990: B.S., Seoul NationalUniversity

E-mail gyjung@postech.ac.kr
Homepage https://ssbl.postech.ac.kr/

Major Research Achievements

- Genetic Engineering for Synthetic Biology
- Synthesis of Bioenergy Super-producer
- Hyper-Sensitive Molecular Diagnosis Method based on CE-SSCP

Research Interests

- Metabolic Engineering
- Synthetic Biology
- Molecular Diagnosis

Research Keywords

Biochip, Biosensor, Fermentation, Metabolic Engineering, Bioprocess Engineering, Biochemical, Microbial/Enzyme Catalyst, Environmental Biotechnology, Bio-clean Technology

Chung, Jong Shik / 정종식

Education 1984: Ph.D., University of Connecticut
1977: M.S., KAIST
1975: B.S., Seoul National University

E-mail jsc@postech.ac.kr
Homepage http://free.postech.ac.kr/

Major Research Achievements

- New Monolithic MEGA and SEGA cells for SOFC
- Coke-free reforming catalysts for methane and diesel
- New Titanates catalysts for Diesel sort, SOx and NOx

Research Interests

- IC and electrode materials for solid oxide fuel cells
- Hydrocarbons reforming and SNG synthesis from CO and CO2.
- Catalysts for removing soot, Sulfur and NOx

Research Keywords

Catalyst and Reaction engineering, Catalytic Chemistry, Energy materials technology, Extrusion technology, Thin-Film manufacturing technology, Nano-Ceramic materials,

Cho, Kil Won / 조길원

Education 1986: Ph.D., University of Akron
1982: M.S., Seoul National University
1980: B.S., Seoul National University

E-mail kwcho@postech.ac.kr
Homepage http://crg.postech.ac.kr/

Major Research Achievements

- Development of high performance organic field effect transistors via interface engineering
- Development of high efficiency organic solar cells
- Development of switchable superhydrophobic-superhydrophilic surfaces

Research Interests

- Polymer Surface, Interface, Thin Film and Adhesion
- Organic Electronics
  - -Organic Field Effect Transistors
  - -Organic Photovoltaic Solar Cells

Research Keywords

Polymer surface, Interface, Thin film, Adhesion, Superhydrophobic surface, Organic electronics, Organic Semiconductor, Organic transistor, Organic solar cell

Cha, Hyung Joon / 차형준

Education 1995: Ph.D., Seoul National University
1992: M.S., Seoul National University
1990: B.S., Seoul National University

E-mail hjcha@postech.ac.kr
Homepage http://magic.postech.ac.kr/

Major Research Achievements

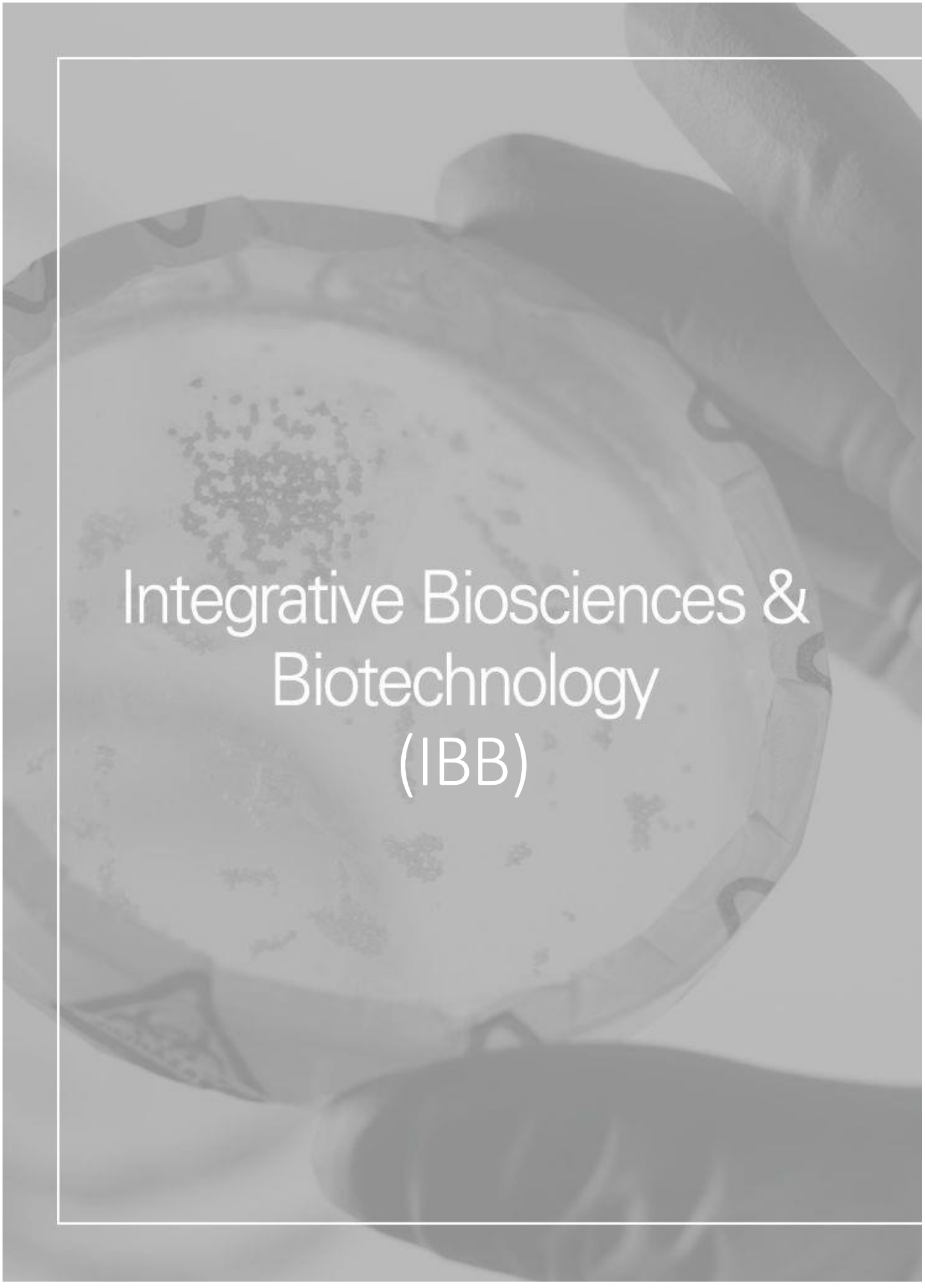
- Mussel adhesive biomaterials and their biotechnological and medical applications
- DNA and glycan chip systems for pathogen detection
- Glycosylation pathway engineering for biosimilar
- Oxygen-tolerant biohydrogen production

Research Interests

- Marine Molecular Biotechnology
- Cell Molecular Biotechnology
- Nano Molecular Biotechnology
- Energy Molecular Biotechnology

Research Keywords

Molecular Bioprocess technology, Genetic engineering, Marine bioresource, Marine bioprocess, Biochip, Metabolic engineering, Functional biomaterial, Protein



Integrative Biosciences & Biotechnology (IBB)

Kim, You-Me / 김유미

Education 2003: Ph.D., Thomas Jefferson University
1994: M.S., Seoul National University
1992: B.S., Seoul National UniversityNational University

E-mail youmekim@postech.ac.kr
Homepage http://www.postech.ac.kr/ibb/

Major Research Achievements

- Identification of innate immune receptor regulators
- Analysis of immune receptor trafficking
- Characterization of B cell receptor activation and antigen presentation

Research Interests

- Immune receptor regulation
- Immune Cell Biology and Live Cell Microscopy
- Drug Target Identification and Chemoproteomics
- Inflammation and autoimmunity

Research Keywords

Innate immunity, Pattern recognition receptor, Toll-like receptor, Inflammasome, Inflammation, Live cell microscopy, Cell biology, Signal transduction, Membrane biology

Ahn, G-One / 안지완

Education 2003: Ph.D., University of Auckland
2000: M.S., University of Auckland
1998: B.Sc., University of Auckland

E-mail goneahn@postech.ac.kr
Homepage http://cvbl.postech.ac.kr/

Major Research Achievements

- Pre-clinical drug development expertise (medicinal chemistry, in vitro and in vivo testing combined with state-of-the-art analytical techniques)
- Exploring tumor hypoxia as a selective advantage for cancer therapy
- Paradigm shift in myeloid cell re

Research Interests

- Molecular mechanisms by which microenvironment of inflammatory diseases regulates myeloid cell properties
- Mouse models of human inflammatory diseases (cancer, vascular, and ischemic diseases)
- Role of hypoxia-inducible factor in myeloid cells in t

Research Keywords

Myeloid cells, Hypoxia, Hypoxia-inducible factor, Inflammatory disease, Cancer, Vascular biology, Mouse models, Drug development

Lee, Seung-Woo / 이승우

Education 1999: Ph.D., POSTECH
1996: M.S., POSTECH
1994: B.S., POSTECH

E-mail sw_lee@postech.ac.kr
Homepage http://www.postech.ac.kr/ibb/

Major Research Achievements

- Regulation of CD4 T helper differentiation and mucosal antigen presenting cells
- Identification of the role of TNF/TNFR family molecules in hematopoiesis and DC development
- Studies about TNFR family molecules (4-1BB and OX-40) in modulating T cell

Research Interests

- Immune regulation between the host immune system and the gut "microbiota"
- Development of mucosal antigen presenting cells and CD4 T helper subsets
- Regulation of hematopoietic stem & progenitor cells and the cancer stem cells

Research Keywords

Antigen presenting cells, T cells, Hematopoietic stem and progenitor cells, Cancer stem cell, Microbiota, TNF/TNFR family molecule

Im, Sin-Hyeog / 임신혁

Education 2001: Ph.D., Weizmann Institute of Science
1989: M.S., Korea University
1987: B.S., Korea University

E-mail imsh@postech.ac.kr
Homepage http://irt.postech.ac.kr/

Major Research Achievements

- Hif-2 as a key factor for rheumatoid arthritis: Plos Biology. 2014: 12(6)21001881.
- Ets1 as a key factor for immune regulation: J Immunol. 2012;188(5):2244-253
- Probiotics for autoimmunity and allergic disorders: PNAS. 2010 2;107(5):2159-64.

Research Interests

- Mechanism of immune tolerance in health and disease
- Probiotics as an immune modulator for autoimmunity and allergic disorders
- Role of transcription factors in immunity and tolerance

Research Keywords

Probiotics, Immune regulation, Gut immunity, Autoimmunity, Allergic disorders

Charles D. Surh

Education 1989: Ph.D., University of California at Davis
1983: B.S., University of California at San Diego

E-mail csurh@postech.ac.kr

Homepage http://tcb.postech.ac.kr/

Major Research Achievements

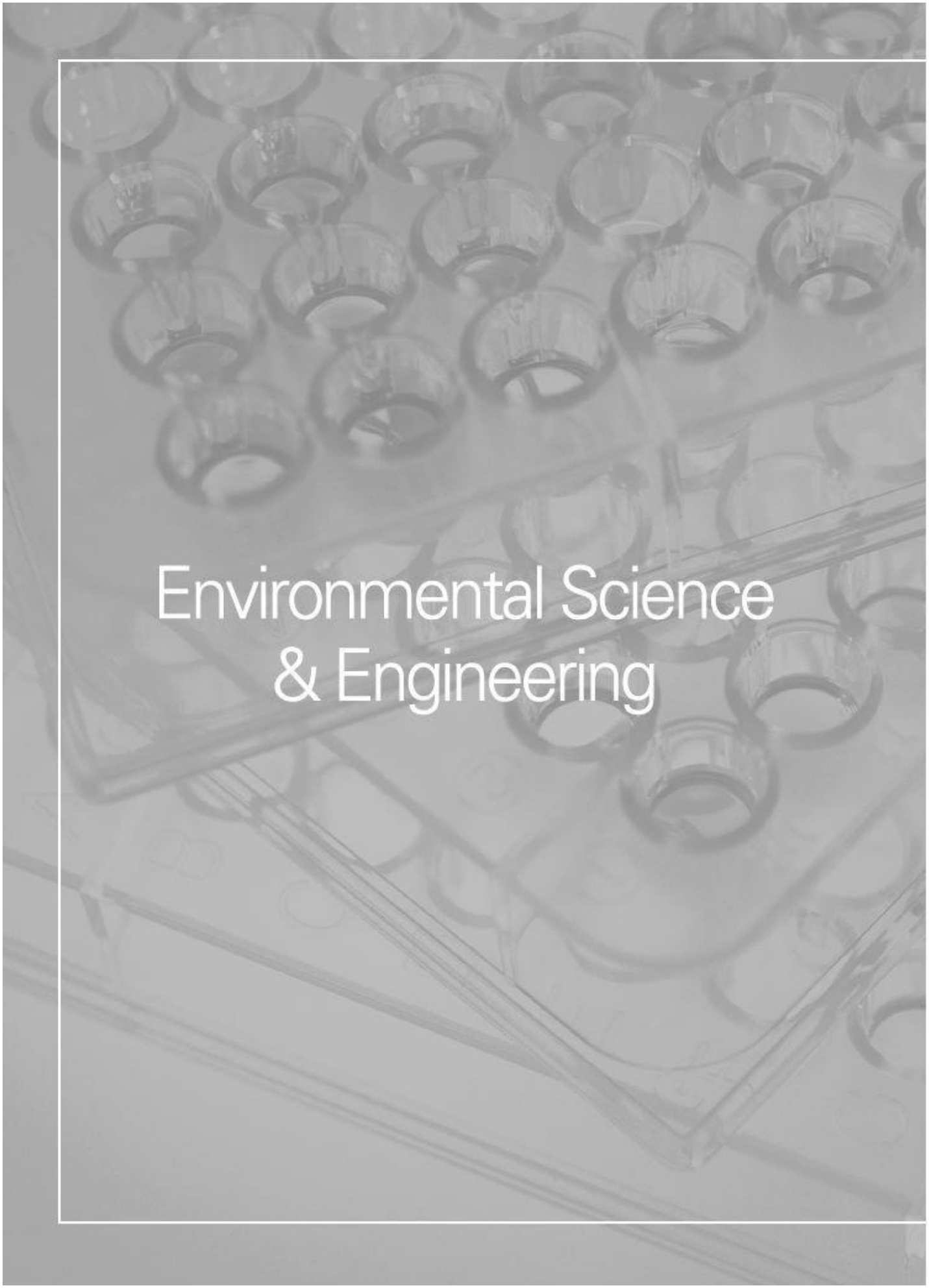
- Defined apoptosis as the mechanism of elimination of immature T cell that fail thymic selection.
- Determined that self-peptide diversity is required for generation of a normal diverse T cell repertoire.
- Identified the factors that regulate homeost

Research Interests

- Regulation of homeostasis between the immune system and the commensal microflora
- Development, homeostasis and function of naïve and memory T cells
- Modulating T cells populations for treatment of cancer and autoimmune diseases

Research Keywords

T cells, Homeostasis, Cytokines, Homeostatic proliferation, Commensal microflora, Thymus


Environmental Science
& Engineering

Kug, Jong-Seong / 국종성

Education 2003: Ph.D., Seoul National University
2000: M.S., Seoul National University
1998: B.S., Seoul National University

E-mail jskug@postech.ac.kr
Homepage http://csl.postech.ac.kr/

Major Research Achievements

- El Nino dynamics
- Climate Model Development
- Climate change dynamics

Research Interests

- Climate Changes
- Ocean-Atmosphere Interaction and El Nino
- Climate modeling and prediction

Research Keywords

Climate changes, El Nino, Earth System interaction, climate model, climate prediction, global carbon cycle

Min, Seung Ki / 민승기

Education 2006: Ph.D., University of Bonn
1997: M.S., Seoul National University
1995: B.S., Seoul National University

E-mail skmin@postech.ac.kr
Homepage http://climatechange.postech.ac.kr/

Major Research Achievements

- First linked greenhouse increase to extreme precipitation (Nature 2011, cover paper)
- Provided first evidence for human-induced Arctic moistening (Science 2008)
- First identified human impact on Arctic sea-ice loss (Geophysical Research Letters 2008

Research Interests

- Human impact on climate
- Prediction of future climate
- Weather and climate extremes

Research Keywords

Climate change detection and projection, Climate change modeling, Climate variability and extremes,Global environmental change,Hydrological cycle

Lee, Kitack / 이기택

Education 1996: Ph.D., University of Miami
1990: M.S., University of South Florida
1986: B.S., Chungnam National University

E-mail ktl@postech.ac.kr

Homepage http://climate.postech.ac.kr/

Major Research Achievements

- Ocean acidification and its impact on marine ecosystem
- Mechanistic understanding of ocean uptake of carbon dioxide
- Human influence on global nitrogen cycle

Research Interests

- Oceanic CO_2 sequestration
- Ocean acidification
- Synoptic monitoring of environmental pollutants

Research Keywords

Marine Chemistry, Global Carbon Cycle, Ocean Acidification, Ocean CO_2 Sequestration

Chang, Yoon-Seok / 장윤석

Education 1990: Ph.D., Oregon State University
1983: B.S., Yonsei University

E-mail yschang@postech.ac.kr

Homepage http://seal.postech.ac.kr/

Major Research Achievements

- Dioxin monitoring & assessment of incinerators
- New analytical methods for fast screening of Persistent Organic Pollutants
- Nano-Bio degradation of POPs by Microorganism and metal catalysts
- Mass spectrometric analysis of metabolites from biolo

Research Interests

- Environmental Analysis and Monitoring of POPs
- Microbiological & Chemical Hybrid Treatment
- Environmental Metabolomics

Research Keywords

Environmental analysis, Monitoring, Assessment, Mass Spectrometry, Persistent Organic Pollutants, Dioxins, Soil, Advanced Oxidation Process, Nano technology

Choi, Wonyong / 최원용

Education 1996: Ph.D., California Institute of Technology
1990: M.S., Pohang University of Science & Technology
1988: B.S., Seoul National University

E-mail wchoi@postech.ac.kr
Homepage http://epa.postech.ac.kr/

Major Research Achievements

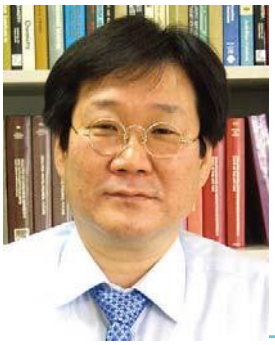
- Mechanistic investigation of environmental photocatalysis
- Development of visible light active photocatalysts
- Solar conversion system for hydrogen production
- Zero-valent metals applied to degradation of recalcitrant organics

Research Interests

- Solar Photoenergy Conversion (hydrogen production, photoelectrochemical cell)
- Semiconductor Photocatalysis for Environmental Remediation
- Physicochemical Treatments of Polluted Water and Air
- Advanced Oxidation Processes (AOPs)
- Environment

Research Keywords

Photocatalysis, Solar Hydrogen, Visible light photocatalysts, TiO2, Advanced oxidation processes



Hong, Suk Bong / 홍석봉

Education 1992: Ph.D., Virginia Tech.
1985: M.S., Seoul National University
1983: B.S., Hanyang University

E-mail sbhong@postech.ac.kr
Homepage http://zeolites.postech.ac.kr

Major Research Achievements

- Discovery of TNU-9: A new medium-pore zeolite structure with 24 topologically distinct tetrahedral sites
- Synthesis of PST-1: The first zeolite that selectively adsorbs the smallest gases like hydrogen or helium
- Discovery of PST-6: The crystallogra

Research Interests

- Ordered nanoporous materials synthesis
- Green sustainable catalysis
- Hydrogen/carbon dioxide separation

Research Keywords

Ordered Nanoporous Materials; Zeolites; Synthesis; Structure Determination; Green Catalysis; Hydrogen; Carbon Dioxide; Separation

Hwang, Dong Soo / 황동수

Education 2006: Ph.D., POSTECH
2002: M.S., POSTECH
2000: B.S., POSTECH

E-mail dshwang@postech.ac.kr
Homepage http://lbem.postech.ac.kr/

Major Research Achievements

- Mass production of recombinant mussel adhesive production
- Mimicking underwater adhesive via Complex coacervate and DOPA chemistry

Research Interests

- Marine biomaterials made of load bearing proteins, metalloprotein, and structural carbohydrate
- Underwater adhesive and fiber from marine organisms
- Biomechanical analysis of marine biomaterials via Surface Force Apparatus (SFA), Nanoindentation, a

Research Keywords

Marine biomaterials, Surface force apparatus, load-bearing protein, underwater adhesion, Marine fibers

Hwang, Seok Hwan / 황석환

Education 1995: Ph.D., Utah State University
1993: M.S., Utah State University
1987: B.S., Yonsei University

E-mail shwang@postech.ac.kr
Homepage http://best.postech.ac.kr/

Major Research Achievements

- Development and statistical optimization of environmental bioprocesses
- Microbial dynamics in carbon- and nitrogen-removal systems using QPCR & other molecular methods
- Genetic recombination of methanogenic archaea to enhance anaerobiosis
- Bio-rec

Research Interests

- Biological Waste(water) Treatment / Scale-up
- Renewable energy (Biogas production) & Bioconversion process
- Bioprocess modeling and control
- Molecular biological monitoring

Research Keywords

Biological Nitrogen Removal, Anaerobic Digestion, Waste(water) Treatment, Bioconversion Technology, Microbial Community Analysis


Graduate Institute of
Ferrous Technology
(GIFT)

Kang, Youn-Bae / 강윤배

Education 2005: Ph.D., POSTECH
2000: M.S., POSTECH
1998: B.S., POSTECH

E-mail ybkang@postech.ac.kr
Homepage http://sites.google.com/site/cslgiftpostech/

Major Research Achievements

- Thermodynamic database development for steels, alloys, and oxides in FactSage system.
- Elucidating evaporation mechanism of tramp elements from molten scrap.
- Elucidating reaction mechanism between high Al steel and mold flux.
- Sophisticated Therm

Research Interests

- Tramp elements refining for scrap recycling
- Refining and alloy phase equilibria for high alloyed steel
- Clean steel production
- Physico-chemical properties of molten steel and slag
- Solution modeling and Thermodynamic database development - CAL

Research Keywords

Metal processing, Metal refining, CALPHAD, Reaction kinetics, Materials physical chemistry

Koo, Yang Mo / 구양모

Education 1986: Ph.D., Northwestern University
1980: M.S., KAIST
1978: B.S., Seoul National University

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Major Research Achievements

- Published over 100 papers in peer-reviewed scientific journals
- Civil Merit Medal(1995)
- Magnet Design and Fabrication of the PLS 2GeV Synchrotron Accelerator
- Synchrotron Beamline Design and Fabrication of Pohang Light Source and Advanced Ligh

Research Interests

- Characterization of Materials Using X-ray
- Electromagnetic Machine Design and Fabrication
- Synchrotron Beamline Design and Fabrication
- Magnetism
- Development of Textures of Metals during Plastic Deformation and Recrystallyzation
- Silicon

Research Keywords

Synchrotron Radiation, Electromagnet, X-ray Crystallography, Characterization of Materials, Residual Stress, Electrical Steel, Silicon Steel, Magnetic Materials

Kim, Nack Joon / 김낙준

Education 1981: Ph.D., University of California, Berkeley
1977: M.S., Seoul National University
1975: B.S., Seoul National University

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Major Research Achievements

- Development of high strength/toughness steels for low temperature applications
- Development of lightweight steels with ultrahigh specific strength for automotive applications
- Development of twin-roll casting process for Mg alloys and amorphous allo

Research Interests

- Alloy Design
- Phase Transformation & Electron Microscopy
- Process Development/Characterization

Research Keywords

Structural materials, Physical Metallurgy, Lightweight Alloys, Twin-roll casting

Kim, Sung-Joon / 김성준

Education 1990: Ph.D., University of Illionis at Urbana-champaging
1982: M.S., KAIST
1980: B.S., Seoul National University

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Major Research Achievements

- Development of high nitrogen austenitic stainless steels
- Development of high interstitial stainless steels
- Development of low C TRIP-assisted steels
- Development of fine grained medium Mn TRIP steels

Research Interests

- Alloy design and characterization of high interstitial stainless steels
- Heat resistant austenitic steels
- Relation between microstructure and properties of alloy steels
- Phase transformation and deformation mechanism

Research Keywords

Stainless steels, heat resistant steels, alloy design, phase transformation, material characterization

Bruno C. De Cooman

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1983: M.S., Cornell University, Ithaca, NY, USA
1980: Burgerlijk Ingenieur, Ghent University, Ghent, Belgium

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Major Research Achievements

- Fulbright-Hays Award
- Professor K. Bollengier Prize
- MRS Award
- Gilbert R. Speich Award (2000)
- MWSP Meritorious Award,
- Gilbert R. Speich Award (2001)
- Michael C.Tenenbaum Award
- Steel Research Best Paper Award (2005)
- APDIC Ind

Research Interests

- Materials science and physics of engineering materials.
- The microstructure engineering of hot and cold rolled steel, the annealing of steel, the continuous galvanizing and the electro-plating of sheet steel.
- Phase transformations, precipitation

Research Keywords

Carbon Steel, Automotive steels, Stainless Steels, Electrical steels, Special Steels

Suh, Dong-Woo / 서동우

Education 2000: Ph.D., Seoul National University
1995: M.S., Seoul National University
1993: B.S., Seoul National University

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Major Research Achievements

- Development of advanced high strength steel with multiphase microstructure
- Development of low density lightweigth steel for automotive application
- Dilatometric analysis model for low carbon steel considering non-isotropic volume change
- Ultra

Research Interests

- Physical metallurgy of ferrous alloys
- Modeling and experimental analysis of phase transformation
- Alloy design for high performance steels

Research Keywords

Steel, Structural metal, Physical metallurgy, Heat-treatment, Phase transformation

Lee, Chong Soo / 이종수

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1981: M.S., Seoul National University
1979: B.S., Seoul National University

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Major Research Achievements

- Fabrication of Two-phase Ultra-Fine Grained Ti alloys
- Intelligent Forming Considering Microstructural Parameters
- Production of ISO 16573-2015
- Development of Ti-base Biomimetic Hybrid Materials

Research Interests

- High cycle and low cycle fatigue properties of structural materials
- Hydrogen delayed fracture resistance of high strength steels
- Formability enhancement of difficult-to-fabricate materials
- Development of Ti-based bio-materials

Research Keywords

Ti-alloys, Steels, Fatigue, Superplasticity, Hydrogen embrittlement, Bio-materials

Jung, Sung Mo / 정성모

Education 1998: Ph.D., POSTECH
1993: M.S., POSTECH
1991: B.S., POSTECH

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Major Research Achievements

- Thermodynamic evaluation of the smelting reduction behavior of Mn ore in steelmaking process
- Viscosity control of highly basic steelmaking slags
- Development of CaF2-free fluxes for hot metal pretreatment
- Development of F analysis method for St

Research Interests

- Alternative and environment-friendly ironmaking processes
- Thermodynamic and kinetic study on ironmaking and steelmaking processes
- Development of physical and chemical analysis methods of steelmaking-related materials
- Recycling of wastes generat

Research Keywords

Ironmaking, steelmaking, thermodynamics, kinetics, hot metal pretreatment, oxygen steelmaking, refining, solid-gas reaction, chemical analysis, standard reference materials

Frederic Gerard Barlat

Education 1984: Ph.D., Institut National Polytechnique de Grenoble, France
1980: M.S., Ecole Nationale Superieure d'Arts et Metiers, France
1980: B.S., Ecole Nationale Superieure d'Arts et Metiers, France

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Homepage https://sites.google.com/site/mmlpostech/home

Major Research Achievements

- Published over 120 papers in peer-reviewed scientific journals
- Recipient of the 1995 ASM Henry Marion Howe Medal of the Material Society for the best technical paper published in Metallurgical Transactions A
- Author of a paper in 2003, which has

Research Interests

- Continuum and fracture mechanics
- Metal plasticity
- Metal forming
- Constitutive modeling
- Microstructure / property relationship

Research Keywords

Prediction/Simulation Technology, Constitutive modeling, Structure material, Analysis of material/ Evaluation Technology, Sheet metal forming Technology, Software related to Plasticity, Mechanical property of Material Technology, Fracture