KSIAM 2014 Spring Conference

Seoul National University, Seoul, Korea
May 23-24, 2014

SCHEDULE

Opening Ceremony : May 23, 13:00-13:10 [101]
- Lim, Cheol Ho (President of KSIAM)

Invited Talks
- Lai, Ming-Chih (National Chiao Tung University, Taiwan)
  - Title : Numerical simulations for a leaky dielectric drop under DC electric field
  - May 23, 13:10-14:00 [101]
- Kim, Dongsu (National Institute of Mathematical Science)
  - Title : Economic Benefits of Mathematical Science Research
  - May 23, 17:30-18:20 [101]
- Woo, Eung Je (Kyung Hee University)
  - Title : Imaging of bioelectromagnetism through EIT and MREIT
  - May 24, 10:50-11:40 [101]

Poster Session : May 24, 13:00-13:50

Young Research Award : May 24, 13:00-13:30 [101]

Special Sessions

• Numerical Methods for Wave Propagation	May 23, 14:10-15:50
• Imaging and Image Processing	May 23, 14:10-15:50
• Mathematical Biology and Its Applications	May 23, 14:10-15:50
• Computational In tensive Programming	May 23, 14:10-15:50
• Numerical Methods in Finance	May 23, 16:00-17:20
• Control Theory and Applications	May 23, 16:00-17:20
• Advanced Algorithms and Computations for Solids/Structures	May 24, 09:00-10:40
• Numerical Methods for High Speed and High Temperature Flows	May 24, 09:00-10:40

General Sessions

• General Session I, II	May 23, 16:00-17:20
• General Session III	May 24, 09:00-10:40
• General Session IV, V, VI, VII	May 24, 14:30-15:30

Welcome Reception : May 23, 18:30-21:00

공동주최 : 서울대학교 수학연구소, 서울대학교 BK21플러스 창의인재양성 수리과학사업단
후   원 : 국가수리과학연구소, 서울대학교 수리과학부, 연세대학교 계산과학공학과, Mathworks

Time	[101]	[104]	[301]	[406]
13:00-13:10	**[101]** Opening Ceremony — LIM, Cheol Ho (KSIAM) — Chair: Jung, Eunok			
	[101] Invited Talk I — Chair: Seo, Jin Keun			
13:10-14:00	Numerical simulations for a leaky dielectric drop under DC electric field — Lai, Ming-Chih (National Chiao Tung Univ., Taiwan)			
14:00-14:10	Break			
	[101] Special Session Numerical Methods for Wave Propagation	**[104]** Special Session Imaging and Image Processing	**[301]** Special Session Mathematical Biology and Its Applications	**[406]** Special Session Computational Intensive Programming
	Chair: Sim, Imbo	Chair: Jung, Yoon Mo	Chair: Lee, Wanho	Chair: Lee, Jang Won
14:10-14:30	Application of complete radiation boundary conditions for the Helmholtz equation in perturbed waveguids — Kim, Seungil (Kyung Hee Univ.)	Analysis of weighted multi-frequency subspace migration for a fast imaging of thin electromagnetic inhomogeneities — Park, Won-Kwang (Kookmin Univ.)	Behavioral algorithms underlying termite's directional selection at wall-type bifurcations — Sim, Seungwoo (NIMS)	Technical computing in bio, aero defence & electronics — Application Engineer (Mathworks)
14:30-14:50	Maxwell solutions in media with multiple random interfaces — Jung, Chang-Yeol (UNIST)	Characterization of metal artifacts in X-ray computed tomography — Park, Hyoung Suk (Yonsei Univ.)	Effects of geological structure and tree density on the forest fire patterns — Kwon, Oh Sung (NIMS)	Model based design in automotive & mechanics — Application Engineer (Mathworks)
14:50-15:10	Immersed Interface finite elements methods for eigenvalue problem — Lee, Seungwoo (KAIST)	Inverse Problem in quantitative susceptibility mapping — Choi, Jae Kyu (Yonsei Univ.)	Modeling the role of TGF-ß in regulation of the Th17 phenotype in the LPS-driven immune system — Lee, Seungwon (POSTECH)	Financial algorithm development and deployment — Application Engineer (Mathworks)
15:10-15:30	Dynamical behaviors for the fractional-order systems — Jang, Bongsoo (UNIST)	An iterative algorithm for dual-energy computed tomography — Jeon, Kiwan (NIMS)	Simulations of combined PDE whole-heart and lumped circulation model — Lee, Wanho (NIMS)	Accelerating large scale(big data) problem using multicore CPU, Cluster & CPU Application Engineer (Mathworks)
15:30-15:50	Projected multilevel Monte Carlo method for wave propagation in random media — Sim, Imbo (NIMS)	Data-adapted moving least squares method for 3-D image interpolation — Jeong, Byeongseon (Ewha W. Univ.)	Reconstruction model for blood flow tracking in the left ventricle — Jang, Jaeseong (Yonsei Univ.)	Simplify computer vision processing — Application Engineer (Mathworks)
15:50-16:00	Break			
	[101] General Session I	**[104]** General Session II	**[301]** Special Session Control Theory and Applications	**[406]** Special Session Numerical Methods in Finance
	Chair: Kwon, Hee-Dae	Chair: Kim, Junseok	Chair: Ahn, Jaemyung	Chair: Kang, Wanmo
16:00-16:20	Construction of GPT-vanishing structures using shape derivative — Feng, Tingting (Inha Univ.)	A fourth-order spatial accurate and practically stable compact scheme for the Cahn-Hilliard equation — Jung, Darae (Korea Univ.)	On calculation of mutual information for informative forecasting — Choi, Han-Lim (KAIST)	Improved binomial tree method for option pricing — Kim, Hongjoong (Korea Univ.)
16:20-16:40	A new model for solving narrow escape problem in domain with long neck — Li, Xiaofei (Inha Univ.)	Immersed boundary method for a droplet under shear flow — Shin, Jaemin (Ewha W. Uni.)	Geometric tracking control on SO(3) using geodesic distance — Kim, Byunghoon (Seoul N. Univ.)	Financial stability and random graph model — Lee, Ji Oon (KAIST)
16:40-17:00	Analysis of a second-order accurate projection method for the incompressible Navier-Stokes equations — Pan, Xiaomin (Yonsei Univ.)	A Numerical method for the modified vector-valued Allen-Cahn model and its application to multiphase image segment — Lee, Hyun Geun (Ewha W. Univ.)	Development of threat plane for constructing optimization problems for operation of anti-air missiles on a naval ship against multiple targets — Lee, SuGwan (KAIST)	A numerical method for derivative pricing under local volatility with jumps — Lee, Younhee (Chungnam N. Univ.)
17:00-17:20	Adaptive weighted essentially non-oscillatory scheme for Euler system of compressible gas dynamics — Li, Haojun (Seoul N. Univ.)	A phase-field modeling of two-phase fluid flows by using minimized Cahn-Hilliard dynamics — Li, Yibao (Yonsei Univ.)	Solving optimal feedback control problems with non-smooth control logic: formulation of Cauchy problem — Eun, Youngho (Yonsei Univ.)	A second order discretization scheme for the extended Cox-Ingersoll-Ross process — Kang, Chulmin (NIMS)
17:20-17:30	Break			
	[101] Invited Talk II — Chair: Lee, Chang-Ock			
17:30-18:20	Economic Benefits of Mathematical Science Research — Kim, Dongsu (NIMS)			
18:30-21:00	Welcome Reception			

	[101] Special Session Advanced Algorithms and Computations for Solids/ Structures	[104] Special Session Numerical Methods for High Speed and High Temperature Flows	[301] General Session III
	Chair: Shin, SangJoon	Chair: Lee, Eunjung	Chair: Kim, Taewan
9:00-9:20	Image-based finite element modeling and micromechanical poroelastic analysis for porous matrix composites **Shin, Eui Sup (Chonbuk N. Univ.)**	High-order multi-dimensional limiting strategy for high-speed compressible flows **Kim, Chongam (Seoul N. Univ.)**	Security of pairing-based cryptosystems based on Type 2 and Type 3 pairing **Chang, Seunghwan (Ewha W. Univ.)**
9:20-9:40	A BDDC algorithm with optimally enriched primal unknowns for multiscale problems **Kim, Hyea Hyun (Kyung Hee Univ.)**	A Study on reduced order model of compressible flows for active flow control **Kim, Haedong (Sejong Univ.)**	Construction of elliptic curves with efficient pairing computation **Eom, Sookyung (Ewha W. Univ.)**
9:40-10:00	Implementation of 3D mesh-free Galerkin method based on stabilized nodal conforming integration **Kim, Jeong Ho (Inha Univ.)**	Large eddy simulation of unsteady shock-wave fluctuation over a supersonic compression ramp **Park, Soo Hyung (Konkuk Univ.)**	On quantum signature schemes based on quantum public-key cryptography **Kim, Taewan (Ewha W. Univ.)**
10:00-10:20	Level set based simulation of two-phase oil-water flows in parallel/inclined pipes **Lee, Byung Joon (Seoul N. Univ.)**	Prediction of 3D ice accretion shapes and aerodynamic performance **Yee, Kwanjung (Seoul N. Univ.)**	On the correspondence between public key and private key in public key cruptography **Lim, Seongan (Ewha W. Univ.)**
10:20-10:40	Development of nonlinear structural analysis based on co-rotational framework for flapping wing **Shin, SangJoon (Seoul N. Univ.)**	Hybrid LES/RANS simulations with immersed boundary methods for high speed turbulent flows **Choi, Jung-il (Yonsei Univ.)**	Nonexistence of certain types of regular p-ary bent functions **Hyun, Jong Yoon (Ewha W. Univ.)**
10:40-10:50	Break		

	[101] Invited Talk III	Chair: Seo, Jin Keun
10:50-11:40	Imaging of bioelectromagnetism through EIT and MREIT **Woo, Eung Je (Kyung Hee Univ.)**	
11:40-13:00	Lunch and Break	

	Poster Session
13:00-13:50	1. Numerical simulation for the phase-field model of fluid vesicles in 3D / **Choi, Yongho (Korea Univ.)** 2. Boundary conditions on the boundary of the Black-Scholes equation / **Hwang, HyeongSeok (Korea Univ.)** 3. Weighted least squares finite element method for Poisson equation with Fichera Corner in 3D / **Jeong, SeongHee (Yonsei Univ.)** 4. Comparison of various types of numerical schemes for the Allen-Cahn equation / **Lee, Seunggyu (Korea Univ.)** 5. 3D blood flow simulations in a compliant vessel / **Park, Yunyoung (Chung-Ang Univ.)** 6. Least squares based L2-approximation for the Navier-Stokes equations in 3D / **Sung, Byounghan (Yonsei Univ.)** 7. LL* method for three dimensional elasticity problem with discontinuous Lame˙ coefficients / **Yoon, RyeongKyung (Yonsei Univ.)**

	[101] Young Researcher's Award	Chair: Kwon, Hee-Dae
13:50-14:20	Inverse problem in quantitative susceptibility mapping **Choi, Jae Kyu (Yonsei University)**	
14:20-14:30	Break	

	[101] General Session IV	[104] General Session V	[301] General Session VI	[406] General Session VII
	Chair: Kang, Myungjoo	Chair: Lee, Yong Hun	Chair: Hyun, Jong Yoon	Chair: Kim, Chongam
14:30-14:50	Numerical study on singularity and topological shange of minimal Mobius strip **Seol, Yunchang (Chung-Ang Univ.)**	Performance analysis of opportunistic schedulling in various fading environments **Kim, Yoora (Univ. of Ulsan)**	Security property of certificateless short signature schemes **Lee, Juhee (Ewha W. Univ.)**	Numerical study on flow characteristics of synthetic jet actuator depending on the actuator shapes and operating condition **Park, Myeongwoo (Seoul N. Univ.)**
14:50-15:10	On the sublinear convergence rate of coordinate descent methods **Yun, Sangwoon (Sungkyunkwan Univ.)**	Image restoration using one dimensional profiles of Sobolev norms for noise and texture **Kim, Yunho (UNIST)**	Classification of Hermitian self-dual codes over $F_{2^{2m}} + uF_{2^{2m}}$ **Kim, Hyun Jin (Ewha W. Univ.)**	Efficient computation of compressible Euler equations by higher-order methods accelerated using GPU **Chang, Tae Kyu (Seoul N. Univ.)**
15:10-15:30	Noble numerical recipe of synthesized pseudo inverse matrix **Lee, Jay Min (POSTECH)**	Multi-scale analysis of data based on graph wavelets: ADHD-200 sample **Kang, Sinuk (NIMS)**		Application of the least squares finite element method to a glaciology problem **Irene, Monnesland (Yonsei Univ.)**
	Closing			