Mini-symposium A3
Modeling and Computation of Fractional Partial Differential Equations

Organizer:
Changpin Li
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Fri - 9 Jan 2015 | 16:00 – 17:30 | Room 03-05/06, Block S16

Chair: Changpin Li, Hong Wang

16:00  A3-01 Invited
Mathematical analysis and fast numerical methods for space-fractional diffusion equations
Hong Wang
Shandong University, China and University of South Carolina, USA

16:30  A3-02 Invited
High-order algorithms for Riesz derivative and their applications
Hengfei Ding, Changpin Li
Department of Mathematics, Shanghai University, Shanghai 200444, China

17:00  A3-03 Invited
Finite Element Multigrid Method for Multiterm Time Fractional Advection Diffusion Equations
Weiping Bu¹, Yifa Tang¹, Jiye Yang²
¹LSEC, ICMS, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing 100190, China; ²School of Mathematics and Computer, Ningxia University, Yinchuan 750021, China

Sat - 10 Jan 2015 | 11:00 – 12:30 | Room 03-05/06, Block S16

Chair: Jie Shen, Hai-wei Sun

11:00  A3-04 Keynote
Efficient spectral-galerkin methods for separable fractional partial differential equations
Zhiping Mao and Jie Shen
Purdue University and Xi’an University

11:30  A3-05 Invited
Fast Approximate Inversion of Block Triangular Toeplitz Matrix with Applications to Fractional Sub-Diffusion Equations
Xin Lu¹, Hong-kui Pang², Hai-wei Sun¹
¹University of Macau, ²Jiangsu Normal University

12:00  A3-06 Invited
Tempered Fractional Sturm-Liouville Eigen-Problems
Mohen Zayernour, Mark Anisworth, and George Em Karniadakis
Division of Applied Mathematics, Brown University, USA

Sat - 10 Jan 2015 | 14:00 – 15:30 | Room 03-05/06, Block S16

Chair: Jingtang Ma, Yunying Zheng

14:00  A3-07 Invited
The discontinuous finite element method for fractional cable equation
Yunying Zheng¹, Zhengang Zhao²
¹School of Mathematical sciences, Huaibei Normal University, Huaibei; ²Department of Fundamental Course, Shanghai Customs College, Shanghai

14:30  A3-08 Invited
Moving mesh finite element methods for fractional differential equations
Jingtang Ma, Zhiqiang Zhou
School of Mathematics, Southwestern University of Finance and Economics, No. 355, Liu-Fai-Du-Dao Street, Wenjiang Area, Chengdu, China

15:00  A3-09 Invited
Understanding partial bed-load transport: experiments and stochastic model analysis
HongGuang Sun¹, Dong Chen², Yong Zhang³, Li Chen⁴
¹State Key Laboratory of Hydrology-Water Resources and Hydraulic Engineering, College of Mechanics and Materials, Hohai University, Nanjing, China; ²Key Laboratory of Water Cycle and Related Land Surface Processes, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing, China; ³Division of Hydrologic Sciences, Desert Research Institute, Las Vegas, NV 89119, USA; ⁴State Key Laboratory of Hydrology-Water Resources and Hydraulic Engineering, Hohai University, Nanjing, China

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Chair: HongGuang Sun, Zhengang Zhao

16:00  A3-10 Invited
A finite element method for a class of time-space fractional integro-differential equation
Zhengang Zhao
Department of Fundamental Courses, Shanghai Customs College, No. 5677, Huaxia West Road, Pudong District, Shanghai City, P.R. China

16:30  A3-11 Invited
A numerical method for the fractional Fourier equation
Peng Guo
Department of Mathematics and Physics, Shanghai DianJi University, Shanghai, China

17:00  A3-12
A general compact ADI scheme for the time-fractional subdiffusion equation in two space dimensions
An Chen, Changpin Li
Department of Mathematics, Shanghai University, Shanghai 200444, China

17:15  A3-13
A novel method to solve two dimensional fractional diffusion equations
Jianxiong Cao¹, Changpin Li¹, YangQuan Chen²
¹Department of Mathematics, Shanghai University, Shanghai200444, China, ²School of Engineering, UC Merced, Merced, CA 95343, USA