Workshop on Numerical Methods for Fractional-Derivative Problems: Singularities and Fast Algorithms

19–20 May 2017

All lectures are in Conference Room 1 on 1st Floor (Ground Floor) CSRC building

Each 30-minute time slot allows *25 minutes for the talk* *and 5 minutes for questions and change of speakers*

Chairpersons of sessions: please consult the list at the end of this Program to see if you are requested to act as Chairperson for any session. The Workshop organisers hope that the people on this list are willing to accept this responsibility. If you are unable to do so, please let the organisers know as soon as possible.

Friday 19 May	
08:15–09:00	*Registration* Enter CSRC at main entrance, then go to the right (past the elevators).
09:00–09:05	*Opening of Conference*
09:05–10:05	*(Main Speaker)* **Bangti Jin**, Time stepping schemes for fractional diffusion
10:05–10:35	**Hong Wang**, Fast numerical methods for fractional PDEs and nonlocal models
10:35–11:00	*Tea/Coffee Break*
11:00–11:30	**Changpin Li**, Finite difference methods with non-uniform meshes for FDEs
11:30–12:00	**Wanrong Cao**, An improved algorithm based on finite difference schemes for fractional boundary value problems with smooth inputs
12:00–12:30	**Martin Stynes**, Error analysis of a finite difference method on graded meshes for a time-fractional diffusion equation
12:30	*Lunch*
13:45–13:55	*Group photo (outside CSRC main entrance)*
14:00–15:00	*(Main Speaker)* **Jie Shen**, Some efficient spectral methods for solving fractional PDEs
15:00–15:30	**Li-Lian Wang**, Generalized Jacobi functions of fractional degree and optimal polynomial approximations in fractional Sobolev-type spaces
15:30–16:00	*Tea/Coffee Break*
16:00–16:30	**Zhimin Zhang**, Superconvergence points for spectral interpolation of Riemann-Liouville and Riesz fractional derivatives
16:30–17:00	**Zhaopeng Hao**, Regularity and spectral methods for two-sided fractional diffusion equations with low order terms
17:00–17:30	**Xuan Zhao**, Adaptive finite element method for fractional differential equations using hierarchical matrices
18:00	*Dinner*

Saturday 20 May	
09:00-10:00	*(Main Speaker)* **William McLean**, Semidiscrete finite element approximation for a fractional Fokker–Planck equation with nonsmooth initial data
10:00–10:30	**Kim Ngan Le**, An implicit time-stepping scheme for the time–fractional Fokker–Planck equation with general forcing
10:30–11:00	*Tea/Coffee Break*
11:00–11:30	**Weihua Deng**, Anomalous diffusion processes with multiple internal states: modeling, algorithm, and applications
11:30–12:00	**Jiwei Zhang**, Efficient algorithm for nonlocal models
12:00–12:30	**Qiang Du**, Nonlocal models as bridges between local and fractional models
12:30	*Lunch*
14:00-14:30	**Zhi-Zhong Sun**, Mathematical model and numerical method for solving a fractional dual-phase-lagging heat conduction equation with the temperature-jump boundary condition
14:30–15:00	**Hui Liang**, Collocation methods for general Caputo two-point boundary value problems
15:00–15:30	**Jizu Huang**, High order fast algorithm with almost optimum memory for the Caputo fractional derivative
15:30–16:00	*Tea/Coffee Break*
16:00–16:30	**Can Huang**, Well-conditioning and error analysis of fractional collocation method using nodal generalized Jacobi functions
16:30–17:00	**Hong-lin Liao**, Fractional Gronwall-type inequality and global consistence analysis of nonuniform L1 formula
17:00–17:30	**Dongfang Li**, unconditionally convergent L1-Galerkin fems for several nonlinear time-fractional parabolic equations
18:00	*Dinner*

Chairpersons of sessions	
Friday 09:00–10:30	William McLean
Friday 11:00–12:30	Weihua Deng
Friday 14:00–15:30	Zhimin Zhang
Friday 16:00–17:30	Jie Shen
Saturday 09:00–10:30	Bangti Jin
Saturday 11:00–12:30	Zhi-Zhong Sun
Saturday 14:00–15:30	Qiang Du
Saturday 16:00–17:30	Jiwei Zhang