What does it mean to take a fractional derivative of a function, e.g. $d^{\frac{1}{2}}/dx^{\frac{1}{2}}$? What is the interpretation of such fractional derivative? What physical phenomena could be modeled using fractional operators? What numerical approaches are adequate to solve fractional PDEs? How do we analyze fractional PDEs?

Schedule of Lectures: (Location: Room 110, 182 George St; Time: 12:00-1:00pm)
Lecture 1: 22 May, 2013, **Lecturer: Prof. Fawang Liu**
   Topic: Numerical methods and analysis of the time, space and time-space fractional PDEs
Lecture 2: 23 May, 2013, **Lecturer: Prof. Zhi-zhong Sun**
   Topic: Finite difference methods for the fractional sub-diffusion equation
Lecture 3: 24 May, 2013, **Lecturer: Prof. Fawang Liu**
   Topic: Numerical methods for variable order fractional partial differential equations
Lecture 4: 29 May, 2013, **Lecturer: Prof. Zhi-zhong Sun**
   Topic: Finite difference methods for the fractional diffusion-wave equation
Lecture 5: 30 May, 2013, **Lecturer: Prof. Fawang Liu**
   Topic: Numerical and analytical solutions for the multi-term time-space fractional PDEs
Lecture 6: 31 May, 2013, **Lecturer: Prof. Fawang Liu**
   Topic: Analysis of implicit numerical methods for the space-time fractional Bloch-Torrey equations

Prof. Fawang Liu
Professor, School of Mathematical Science
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Research Interests:
Numerical analysis; Fractional Differential Equations; Numerical methods of singular perturbation, adsorbate transport and microwave heating problems and saltwater intrusion into heterogeneous aquifer systems.

Prof. Zhi-zhong Sun
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Research Interests:
Numerical solutions for nonlinear PDEs; Numerical analysis; Error estimates of numerical solutions for fractional PDEs; Numerical solutions for Schrödinger equations, Cahn-Hilliard Equation.

For the latest development of Fractional PDEs, please follow the upcoming symposium:
http://www.dam.brown.edu/International%20Symposium/internationalsymposiumonfractionalPDEs.htm