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**PIMS / AMI  
Differential Equations & Dynamics Seminar**

**Friday, October 8, 2010  
3:00 p.m.  
CAB 365**

**“Exact Solution of the Plane Flow with Unsteady  
Vortex, Brownian Motion, Diffusion and  
Osmosis”**

**Professor Keying Guan  
Department of Mathematics  
Beijing Jiaotong University**

**Abstract**

**Based on the conception "pseudo-potential" of the incompressible plane flow, an exact solution is given to the Euler's equation with an arbitrarily given potential force. With the KAM theory and the second order Melnikov function, it is proved that this solution describes infinitely many unsteady vortices distributed periodically on the whole plane and the Brownian motion appeared along the border region which separating different vortices. This exact solution can explain why the Brownian motion, the diffusion and osmosis can appear in the macroscopic static water.**

**Refreshments will be served in CAB 649 at 2:30 p.m.**