

## APPLIED MATHEMATICS COLLOQUIUM

Date: Wednesday, September 16, 2015

Time: 2:30 – 3:30 p.m.

Location: Middlesex College Room 204

### **Existence of stationary solutions for some integro-differential equations with anomalous diffusion**

**Vitali Vougalter**

University of Toronto - Department of Mathematics -  
Toronto, Ontario, Canada

#### **Abstract:**

The work deals with the existence of solutions of an integro-differential equation arising in population dynamics in the case of anomalous diffusion involving the negative Laplace operator raised to a certain fractional power. The proof of existence of solutions is based on a fixed point technique. Solvability conditions for non-Fredholm elliptic operators in unbounded domains along with the Sobolev inequality for a fractional Laplacian are being used.