SEMINAR
CENTER FOR APPLIED MATHEMATICS AND SCIENCE
DEPARTMENT OF MATHEMATICS
UNIVERSITY OF WEST GEORGIA

1:00 PM, THURSDAY, MARCH 10th, 2016, BOYD 306

Speaker: **Dr. Vu Kim Tuan, Department of Mathematics, UWG**

Title: **Recovery of the heat equation from a single boundary measurement**

Abstract: Consider the one-dimensional heat process in a finite length rod, where the heat source is proportional to the temperature distribution

$$\begin{cases} u_t(x,t) = u_{xx}(x,t) - q(x)u(x,t), & 0 \le x \le 1, \quad t > 0, \\ u(0,t) = 0, \\ u(1,t) = a(t), \\ u(x,0) = 0. \end{cases} \tag{1}$$

We are concerned with the recovery of the heat coefficient $q(x)$ from the measurement of $u_x(1,t) = b(t)$, which is the heat flux at one end of the rod. Let $u(1,t) = a(t)$ be a nontrivial, nonnegative, and continuously differentiable function with compact support on $(0,T)$. We will show that a single measurement of $u_x(1,t) = b(t)$ either on (T,T_1) or at $t = 1, 2, \cdots$ determines $q(x)$ uniquely.

This is a joint work with Dr. Amin Boumenir.

All are welcome.