

Department of Mathematics and Statistics Colloquium

*Recovering the Source Function in the Advection
Diffusion Equation*

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Abstract: This is a small problem in the area of Inverse Problems with applications in Threat Detection.

We discuss the cases when the source $f(x)$ and the velocity ψ in the advection diffusion equation $u_t(x, t) = \Delta u(x, t) + \psi \cdot \nabla u(x, t) + f(x)$ can be uniquely recovered using *one future time measurement* $u(x, T)$ at all locations $x \in R^n$. We consider both constant and non-constant velocity functions. This problem is important in threat detection applications, where we think of $f(x)$ as a source of a contaminant propagating in an urban area. We also present numerical simulations.

Monday, April 10 at 3:45 in Roop 103

Refreshments at 3:30