

College of Arts and Sciences

Interdisciplinary Mathematics Institute

University of South Carolina

# IMI Seminar Series



## On Exact Recovery of Signals from the Projection onto Polynomial Spaces

**Dr. Shai Dekel**

GE Global Research, and  
School of Mathematical Sciences,  
Tel Aviv University

In this talk, we will review some recent contributions (as well as ours) to the following prototype problem: We are given the projection of a superposition of Diracs onto a finite dimensional polynomial space over a manifold (e.g. trigonometric polynomials, algebraic polynomials, spherical harmonics) and we wish to recover the signal exactly and in particular, the locations of the knots. We will show that under a separation condition on the support of the unknown signal, there exists a unique solution through TV minimization over the space of Borel measures. Time allowing, we will present extensions to recovery of splines, streams of pulses, numerical algorithms, experimental results, stability under noise and more.

Joint work with Tamir Bendory and Arie Feuer (Technion).

<http://imi.cas.sc.edu/events/513/>

TUESDAY

September

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4:00 - 5:00 PM

LeConte College

Room 312



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