1067-41-283   **Edward J. Fuselier*** (`efuselie@highpoint.edu`), 833 Montlieu Ave., High Point, NC 27262, and **Grady B. Wright**. *Scattered Data Interpolation on Embedded Submanifolds with Restricted Positive Definite Kernels: Sobolev Error Estimates.*

In this talk we will discuss the approximation properties of kernel interpolants on manifolds. The kernels we consider will be obtained by the restriction of positive definite kernels on $\mathbb{R}^d$, such as radial basis functions (RBFs), to a smooth, compact embedded submanifold $\mathbb{M} \subset \mathbb{R}^d$. For restricted kernels having finite smoothness, we will provide a complete characterization of the native space on $\mathbb{M}$. After this and some preliminary setup, we will present Sobolev-type error estimates for the interpolation problem. (Received August 16, 2010)