

**Speaker:** Fengbo Hang, Princeton University

**Title:**

“The strong and weak density of smooth maps for the Dirichlet energy between manifolds”

**Abstract:**

I will describe necessary and sufficient (topological) conditions for smooth maps to be strongly or weakly dense in the Sobolev space  $W^{1,2}(M, N)$  between two Riemannian manifolds  $M$  and  $N$ . This space appears naturally in the calculus of variations. The strong density result (joint with Fanghua Lin) answers a question raised by Eells and Lemaire in 70's and generalizes special cases handled earlier by Bethuel and Hajlasz. The weak density result generalizes earlier sufficient conditions given by Bethuel-Brezis-Coron and Pakzad-Riviere.