

# ***PDE, COMPLEX ANALYSIS AND DIFFERENTIAL GEOMETRY SEMINAR***

**Guest Speaker: Brian Reyes**  
**University of Notre Dame**

**Date:** Tuesday, June 14, 2022

**Time:** 11:00 AM

**Location:** 258 Hurley Hall



**Lecture Title:**

**Well-Posedness of the modified DP equation**

***Abstract***

We consider the Cauchy problem of the modified Degasperis-Procesi equation (mDP) on the line with initial data in Sobolev spaces. Using bilinear estimates for the nonlocal nonlinearity in Bourgain spaces, we show that this equation is locally well-posed in Sobolev spaces  $H^s$  for  $s > \frac{3}{4}$ . Also, we shall discuss the derivation of the bilinear estimates needed. Finally, we will indicate how we can prove well-posedness in analytic Gevrey spaces  $G^{\delta,s}$  by introducing an extra exponential weight in Bourgain spaces and deriving the corresponding bilinear estimates.