

PDE, COMPLEX ANALYSIS AND DIFFERENTIAL GEOMETRY SEMINAR

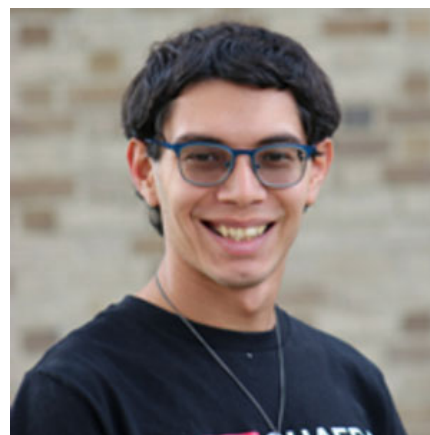
Guest Speaker: Brian Reyes
University of Notre Dame

Date: Tuesday, October 3, 2023

Time: 11:00 AM

Location: 258 Hurley Bldg

Zoom URL: <https://notredame.zoom.us/j/98530943143>



Lecture Title:

The Cauchy problem of the modified b -family

Abstract

We consider the Cauchy problem of the modified b -family of equations and study its well-posedness in Sobolev and analytic spaces. Using bilinear estimates for estimating the nonlinearity in Bourgain spaces, we show that this equation is locally well-posed in Sobolev spaces H^s for $s > -\frac{3}{4}$. Furthermore, we show local well-posedness for data in analytic spaces $G^{\delta,s}$, for $s > -\frac{3}{4}$ and $\delta > 0$. Finally, for $b = 3$ (the Degasperis-Procesi case) we show that the local solutions are global, and study the evolution of the uniform radius of analyticity. We will talk about the relationship between the radius of analyticity δ and the critical Sobolev exponent $s_c = -\frac{3}{4}$.