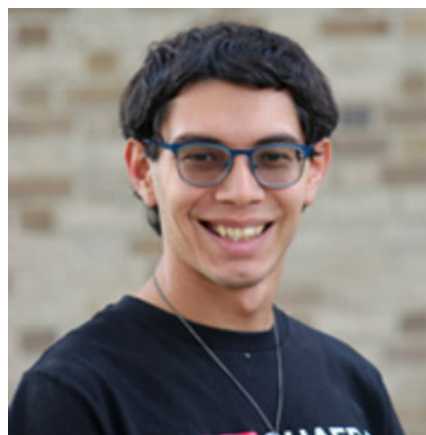


PDE, COMPLEX ANALYSIS AND DIFFERENTIAL GEOMETRY SEMINAR

Guest Speaker: Brian Reyes
University of Notre Dame



Date: Tuesday, March 15, 2022

Time: 11:00 AM

Location: 258 Hurley Hall

Zoom URL: <http://notredame.zoom.us/j/4452533957>

Lecture Title:

The Cauchy Problem of the dispersion modified b-equation

Abstract

We consider the Cauchy problem of the modified b-equation equation with initial data in analytic Gevrey spaces. Using bilinear estimates for the nonlocal nonlinearity in analytic Bourgain spaces, we show that this equation is locally well-posed in analytic Gevrey spaces $G^{\delta,s}$. Therefore the radius of the spatial analyticity persists for $t \in [-T_0, T_0]$ for some $T_0 > 0$. Then, noticing that for $b = 3$ this equation conserves the “twisted” L^2 norm, we use bilinear estimates to show an almost conservation law in $G^{\delta,0}$. Finally, using this almost conservation law we show that the solution $u(t)$ exists for all time t and its spatial radius of analyticity satisfies a lower bound estimate.