

# Colloquium

University of Notre Dame  
Department of Mathematics

Paula Burkhardt-Guim - New York University

**Speaker:** Paula Burkhardt-Guim

New York University

**Will give a lecture entitled**

Ricci flow and synthetic lower scalar curvature bounds



**Date:** Tuesday, November 28, 2023

**Time:** 4:00 PM

**Location:** 117 Hayes-Healy Bldg

**Departmental Tea:** Tea in Room 257 (lounge in Hurley Hall) at 3:30 p.m.

**Zoom URL:** [notredame.zoom.us/j/94209026501?](https://notredame.zoom.us/j/94209026501?pwd=d0hDdmRua0JETFV6MkpPSWFJZkZDQT09)

pwd=d0hDdmRua0JETFV6MkpPSWFJZkZDQT09 Meeting ID: 942 0902 6501 Passcode: 596816

## Abstract:

Since its introduction by Hamilton in 1982, the Ricci flow has proven to be a powerful tool for the resolution of many problems in geometry and topology. This talk is concerned with the use of Ricci flow to study spaces with lower scalar curvature bounds, particularly spaces that exhibit singular behavior. The use of Ricci flow to study such spaces is a relatively recent development, but it has already yielded interesting results. We first discuss the use of Ricci flow to smooth certain singular metrics that are smooth with nonnegative scalar curvature away from a singular set. We then propose a class of local definitions of weak lower scalar curvature bounds that is well defined for  $C^0$  metrics. We show that the definitions are stable under greater-than-second-order perturbation of the metric, and that uniform weak lower scalar curvature bounds are preserved under evolution by the Ricci flow from  $C^0$  initial data.