

# Colloquium

University of Notre Dame  
Department of Mathematics

Guozhen Lu - University of Connecticut

**Speaker:** Guozhen Lu

University of Connecticut

**Will give a lecture entitled**

Fourier analysis on hyperbolic spaces and sharp geometric and functional inequalities

**Date:** Wednesday, March 27, 2019

**Time:** 4:00 PM

**Location:** 129 Hayes-Healy Hall

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



**Abstract:**

In this talk, we will describe some recent works on the sharp higher order Hardy-Sobolev-Maz'ya and Hardy-Adams inequalities on hyperbolic balls and half spaces. The relationship between the classical Sobolev inequalities and the Hardy-Sobolev-Maz'ya inequalities for higher order derivatives will be established. Our main approach is to use the Fourier analysis on hyperbolic spaces and Green's function estimates. A large part of the talk will focus on reviewing (nontechnically) some known classical results on Hardy's inequalities, Sobolev inequalities, Hardy-Sobolev inequalities and first order Hardy-Sobolev-Maz'ya inequalities. Then we will briefly talk about the general approach on establishing the new geometric and functional inequalities using the Fourier analysis on hyperbolic spaces. The talk aims to a general audience.