

# Fully Nonlinear Equations in Conformal Geometry

October 7,14,21 and 28 1:30 - 3:30pm/S-101

The goal of this course to provide an introduction to Monge-Ampere-type equations in conformal geometry and their applications.

The plan of the course is the following: After providing some background material in conformal geometry, I will describe the  $k$ -Yamabe problem, a fully nonlinear version of the Yamabe problem, and discuss the associated ellipticity condition and its geometric consequences.

Next, I will discuss a priori estimates, some basics of blow-up analysis, and entire solutions.

In order to reduce some of the technical issues involved, while providing an important example the geometric applications of these equations, I will then narrow my focus to the case of four dimensions, and sketch a proof of existence in this case. Finally, I will point out some geometric applications of the equations in four dimensions.