Schedule of a mini-workshop in UFF
07/26/2023
Sala 407 - H

1. Wenshuai Jiang (Zhejiang University, China) **9:30-10:00**

Title: Singular metrics and curvature

Abstract: In Riemannian geometry, one important topic is to study the geometry and topology of smooth manifold und er certain curvature conditions. Sometimes, this study depends on the geometry of singular metrics if one uses conve rging argument. In this talk, we will consider manifolds with singular metric and some weak curvature condition.

2. Chao Xia (Xiamen University) **10:00-10:30**

Title: A sharp lower bound for Steklov eigenvalue

Abstract: Escobar has conjectured that for a compact manifold with boundary which has nonnegative Ricci curvature and boundary principal curvatures bounded below by 1, the first (nonzero) Steklov eigenvalue is greater than or equa l to 1with equality holding if and only if the manifold is isometric to a Euclidean unit ball. This conjecture is true in two dimensions due to Payne and Escobar. In this talk, we present a resolution to this conjecture in the case of nonnegati ve sectional curvature in any dimensions. The proof is based on a weighted Reilly-type formula due to Qiu-Xia with a special choice of weight depending on the boundary distance function. The talk is based on a joint work with Changw ei Xiong.

10 minutes break.

3. Yuxing Deng (Beijing Institute of Technology) **10:40-11:10**

Title: Rigidity of postively curved steady ricci solitons on manifolds and orbifolds.

abstract: Steady ricci solitons are important examples of singularities models. In higher dimensions, singlarity models can be steady Ricci solitons on orbifolds. In this talk, we will review some rigidity theorems on positively curved stead y ricci solitons on manifolds. In the end, we classify noncollapsed steady ricci solitons on orbifolds with compact sing ularity, positive curvature operator that dimension reduce to S^3/Gamma.

4. Zhenlei Zhang (Capital Normal University) **11:10—11:40**

Title: Heat equation approach to Demailly regularity theorem

Abstract: Demailly regularity theorem for positive (1,1) currents is an important technique in pluripotential theory. I the talk I will present a heat equation approach to the theorem. Application to the regularity of complex Monge-Ampere equation will also be discussed. It is a joint work with Lei Zhang.