

**Guofang Wang**

**Title: Mass and geometric inequalities**

Abstract: In this talk, we start from a new mass for asymptotically flat manifolds and prove a positive mass theorem and a Penrose type inequality for asymptotically flat graphs, by using classical Alexandrov-Fenchel inequalities in the euclidean space. Then we define a new mass for asymptotically hyperbolic manifolds and prove a positive mass theorem and a Penrose type inequality for asymptotically hyperbolic graphs, by establishing new weighted Alexandrov-Fenchel inequalities in hyperbolic space. Finally, if I still have time, I will talk about Alexandrov-Fenchel inequalities without weight in hyperbolic space. (The first two results are joint work with Yuxin Ge and Jie Wu, the last with Chao Xia.).