

**ON THE GRADIENT ESTIMATES FOR HEAT KERNEL AND  
HARMONIC FUNCTIONS AND APPLICATIONS**

**Speaker: Renjin Jiang**  
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**Time: Mon, Apr. 19th, 10:00-12:00**

**Venue: Room 102, Shanghai Center for Mathematical Sciences**

**Abstract:** In this talk, I shall report some recent results regarding regularity of harmonic functions and heat kernels on manifolds as well as metric measure spaces. The progress started from the regularity problem of harmonic functions in metric geometry, and it turns out some new phenomenon about heat kernel and harmonic functions appears in the study. We shall also discuss its applications to the Riesz transform. The talk is based on some recent result joined with T. Coulhon, P. Koskela, F. Lin and A. Sikora.