

Speaker: Animesh Biswas (Iowa S)

Title: Regularity Theory for non-local space-time Master equation

Abstract: We analyze recent novel regularity theory for fractional power of parabolic operators in divergence form. These equations are fundamental in continuous time random walk models and appear as generalized Master equation. These equations are non-local in nature and were studied by Luis Caffarelli and Luis Silvestre. We developed a parabolic method of semigroups that allows us to prove a local extension problem. As a consequence we obtain interior and boundary Harnack inequalities and sharp interior and global parabolic Schauder estimates. For the latter, we also prove a characterization of the correct intermediate parabolic Hölder spaces in the spirit of Sergio Campanato. This is a joint work with Marta de León-Contreras (Universidad Autónoma de Madrid, Spain) and Pablo Raul Stinga (Iowa State University).