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**Erkan Nane\*** (ezn0001@auburn.edu), 221 Parker Hall, Auburn, AL 36849. *Fractional Cauchy problems on compact manifolds.*

We investigate anomalous diffusion on compact Riemannian manifolds, modeled by time-changed Brownian motions. These stochastic processes are governed by equations involving the Laplace-Beltrami operator and a time-fractional derivative of order  $\beta \in (0, 1)$ . We also consider time dependent random fields that can be viewed as random fields on randomly varying manifolds. We discuss time fractional Cauchy problems on the sphere as an example. Some of these random fields on the sphere exhibit a kind of “long range dependence”.

The results presented are our recent joint work with Mirko D’ovidio. (Received July 25, 2018)