

Riemannian Structures on Lie Groupoids

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ABSTRACT

In this talk, I will present a part of my master's thesis work. As the title suggests, we will begin this talk by revising some basic notions from the theory of Lie groupoids and Riemannian geometry. We will see that the existence of a special Riemannian metric on the set of composable arrows of a Lie groupoid introduces the concept of a Riemannian groupoid. This attempt to define a metric compatible with the Lie groupoid multiplication map opens a door to an exciting area connecting Riemannian geometry and Lie groupoid theory. In this talk, we will first discuss the results guaranteeing the existence of a Riemannian structure on gauge groupoids and proper Lie groupoids. Then we will discuss some of the observations in this direction.