Public Abstract
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This dissertation set out to investigate a generalization of Seiberg-Witten theory from four-dimensional manifolds to four-codimensional Riemannian foliations. Seiberg-Witten theory was originally born out of the String theory of physics, however the introduction of that theory to pure mathematics has proved to have great utility for studying four-dimensional manifolds, particularly for classifying such spaces. A foliation is a geometric space that is broken down into disjoint lower dimension spaces, each having the same dimension. A generalization of the Seiberg-Witten theory to four-codimensional foliations could prove just as fruitful to the study of the transverse space, a generally complicated space, associated to a foliation.