

# The kernel of the Rarita-Schwinger operator on Riemannian spin manifolds

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## Abstract:

The Rarita-Schwinger operator is a twisted Dirac operator. It has several interesting applications in physics and differential geometry. In my talk I will introduce this operator, give some of its properties and then concentrate on its kernel. In contrast to the classical Dirac operator the Rarita-Schwinger operator can have a non-trivial kernel on compact manifolds with positive scalar curvature. I will discuss several examples for this. In particular I will explain how one can identify the kernel of the Rarita-Schwinger operator with subspaces of harmonic forms on manifolds with special holonomy. My talk is based on a project with Yasushi Homma (Waseda University, Tokyo).

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