

Title: Octonions, Monopoles, and Knots
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Abstract:

Besides being one of the main tools of the modern physics, gauge theory is extensively used in geometry and topology. In this talk I shall describe its relation to the problem of classifying knots.

We start with an overview of how monopoles and the Nahm equations are used to define knot invariants, using Witten's version of Morse theory. Then, we bring out the octonionic nature of this approach. This leads us to an open problem, a new formulation of an alternative approach to knot invariants using octonionic monopoles in seven dimensions.