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Yisong Yang* (yyang@math.poly.edu), Brooklyn, NY 11201. *Relativistic Chern-Simons Equations and Variational Methods.*

The relativistic Chern-Simons equations arise in condensed-matter physics. Unlike their nonrelativistic equation limits, these equations are often nonintegrable and analytic methods have to be resorted to. In this talk, we present several variational methods which may be used to establish existence theorems for various systems of elliptic equations of the self-dual Chern-Simons models. (Received August 23, 2006)