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**Magdalena Czubak\*** (czubak@math.binghamton.edu) and **Robert L. Jerrard**. *Cosmic strings in the abelian Higgs model*.

We give a rigorous description of the dynamics of the Nielsen-Olesen vortex line. In particular, given a worldsheet of a string, we construct initial data such that the corresponding solution of the abelian Higgs model will concentrate near the evolution of the string. Moreover, the constructed solution stays close to the Nielsen-Olesen vortex solution. (Received September 04, 2012)