

Nonminimal Wu-Yang wormhole

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Abstract

We discuss exact solutions of a three-parameter nonminimal Einstein-Yang-Mills model, which describe the wormholes of a new type. These wormholes are considered to be supported by the SU(2)-symmetric Yang-Mills field, nonminimally coupled to gravity, the Wu-Yang ansatz for the gauge field being used. We distinguish between regular solutions, describing traversable nonminimal Wu-Yang wormholes, and black wormholes possessing one or two event horizons. The relation between the asymptotic mass of the regular traversable Wu-Yang wormhole and its throat radius is analyzed. © 2007 The American Physical Society.

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