

Stationary double black hole without naked ring singularity

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Abstract

© 2018 IOP Publishing Ltd. Recently double black hole vacuum and electrovacuum metrics attracted attention as exact solutions suitable for visualization of ultra-compact objects beyond the Kerr paradigm. However, many of the proposed systems are plagued with ring curvature singularities. Here we present a new simple solution of this type which is asymptotically Kerr, has zero electric and magnetic charges, but is endowed with magnetic dipole moment and electric quadrupole moment. It is manifestly free of ring singularities, and contains only a mild string-like singularity on the axis corresponding to a distributional energy-momentum tensor. Its main constituents are two extreme co-rotating black holes carrying equal electric and opposite magnetic and NUT charges.

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Keywords

beyond Kerr paradigm, black holes, double black holes, naked singularities, solution generating techniques

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