

## Abstract

We study a simple class of time-dependent rotating Ricci-flat cylindrically symmetric spacetime manifolds whose geodesics admit gravitomagnetic jets. The helical paths of free test particles in these jets up and down parallel to the rotation axis are analogous to those of charged particles in a magnetic field. The jets are attractors. The jet speed asymptotically approaches the speed of light. In effect, such source-free spacetime regions act as "gravitomagnetic accelerators".