

Abstract Submitted  
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**Stress-energy distribution for a cylindrical artificial gravity field via the Darmois-Israel junction conditions of general relativity** NICOLAE ISTRATE, JOHN LINDNER, The College of Wooster — We design an Earth-like artificial gravity field using the Darmois-Israel junction conditions of general relativity to connect the flat spacetime outside an infinitesimally thin cylinder to the curved spacetime inside. In the calculation of extrinsic curvature, our construction exploits Earth's weak gravity, which implies similar inside and outside curvatures, to approximate the unit normal inside by the negative unit normal outside. The stress-energy distribution on the cylinder's sides includes negative energy density.

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