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Testing General Relativity using the Environmental Dependence of Dark Matter Halos



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Dr. Zhao is a Dennis Sciama fellow in the Institute of Cosmology and Gravitation (ICG) at the University of Portsmouth in the UK. His main research interest is designing and performing cosmological tests of Einstein's General

Relativity and Dark Energy paradigms.

Abstract

I will focus on the investigation of the environmental dependence of dark matter halos in theories that attempt to explain the accelerated expansion of the Universe by modifying general relativity (GR). Using high-resolution N-body simulations in $f(R)$ gravity models which recover GR in dense environments by virtue of the chameleon mechanism, we find a strong environmentally-dependent

difference between the lensing mass and dynamical mass estimates of dark matter halos. This environmental dependence of the halo properties can be used as a smoking gun to test GR observationally.



All are welcome! Tea, coffee, biscuits will be served at 2:45 P.M.

You are welcome to nominate speakers to Shude Mao (shude.mao@gmail.com), Licai Deng (licai@bao.ac.cn), Xuelei Chen (xuelei@cosmology.bao.ac.cn).