APR12-2011-000086

Abstract for an Invited Paper
for the APR12 Meeting of
the American Physical Society

Astrophysical Tests of Gravity

BHUVNESH JAIN, University of Pennsylvania

Gravity theories designed to explain cosmic acceleration have been actively pursued in recent years. In parallel, large-scale cosmological tests have been formulated and some constraints from observations have already been obtained. This talk will focus on a powerful, new arena for astrophysical tests of gravity: galaxies and stars in the nearby universe. We will argue that scalar-tensor gravity theories generically lead to a wide range of observational signatures that are detectable in nearby galaxies. Observational constraints from existing data within 10-100 Mpc will be presented.