

Abstract Submitted
for the APR12 Meeting of
The American Physical Society

Testing extensions of General Relativity using the latest cosmological data sets JACOB MOLDENHAUER, Francis Marion University, JASON DOSSETT, MUSTAPHA ISHAK, The University of Texas at Dallas — We place constraints on cosmological models described as extensions of General Relativity, or modified gravity models, using the latest cosmological observations for both expansion and growth history. These models have been shown to give an alternative explanation for the observed accelerated expansion of the universe. We use the recently refined HST-COSMOS weak lensing tomography data, the ISW-galaxy cross correlations from 2MASS and SDSS LRG galaxy surveys, the matter power spectrum from SDSS-DR7, the WMAP7 temperature and polarization spectra, the BAO from the WiggleZ survey, and the Union2 compilation of type Ia supernovae, in addition to other bounds from Hubble parameter measurements and the Big Bang Nucleosynthesis. We use a few recent parameterizations of modified gravity to test the models for consistency with the data sets. Models which are inconsistent will be ruled out as possible explanations for the cosmic acceleration, while consistent models will have more support as competitive cosmological models.

Jacob Moldenhauer
Francis Marion University

Date submitted: 16 Jan 2012

Electronic form version 1.4