## Abstract Submitted for the SES11 Meeting of The American Physical Society

Testing General Relativity at Cosmological Scales using ISiTGR JACOB MOLDENHAUER, Francis Marion University, JASON DOSSETT, MUSTAPHA ISHAK, The University of Texas at Dallas — With the plethora of incoming and future cosmological data, the testing of general relativity at cosmological scales has become a possible and timely endeavor. It is not only motivated by the pressing question of cosmic acceleration but also by the proposals of some extensions to general relativity that would manifest themselves at large scales of distance. To test the consistency of current and future data with general relativity, we introduce the package: ISiTGR, Integrated Software in Testing General Relativity, an integrated set of modified modules for the publicly available packages CosmoMC and CAMB, including a modified version of the ISW-galaxy cross correlation module of Ho et al and a new weak lensing likelihood module for the refined HST-COSMOS weak gravitational lensing tomography data. We provide the equations for the parameterized modified growth equations and their evolution. We implement a functional form approach, a binning approach, as well as a new hybrid approach to evolve the modified gravity parameters in redshift (time) and scale. Examples calculating current constraints on modified gravity parameters are given for illustration and showing again that current data is consistent with general relativity.

> Jacob Moldenhauer Francis Marion University

Date submitted: 21 Sep 2011

Electronic form version 1.4