Abstract Submitted
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Challenging the status quo with weak gravitational lensing ALI VANDERVELD, University of Chicago — Weak gravitational lensing, wherein the images of distant galaxies are distorted by matter in the foreground, can be a powerful cosmological probe if we have good statistics and systematics control. The former will be made possible by forthcoming large-area surveys, such as with the Euclid satellite. The latter, however, is still a work in progress despite the improvements from going to space. To that end, I will show how we can use weak lensing to robustly test the cosmological "standard model" by using state-of-the-art expansion history data to make timely predictions for these anticipated future observations. Using this methodology I will show how various theoretical and observational uncertainties impact our ability to possibly falsify the standard model with Euclid weak lensing data, thereby exploring the effects of dynamical dark energy, warm dark matter, baryonic physics, and additional neutrino species.

Ali Vanderveld
University of Chicago

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