

Decelerating and Dustfree: Novel, Efficient Dark Energy Studies with Supernovae and Clusters

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Scientific Category: COSMOLOGY

Scientific Keywords: COSMOLOGICAL PARAMETERS AND DISTANCE SCALE, CLUSTERS OF GALAXIES, SUPERNOVAE

Instruments:

Proprietary Period: 12

3 Gyro Mode Orbit Request

Prime

Parallel

2 Gyro Mode Orbit Request

Prime

Parallel

Abstract

The key issues needing to be addressed for next generation studies of dark energy and cosmology are observations at high redshifts and with robust systematics control. We propose novel techniques for achieving both simultaneously, eliminating difficulties in the use of GOODS data. By targeting massive, X-ray selected clusters at $z > \sim 1$ we obtain a high efficiency in detection of Type Ia supernovae, minimization of the dominant systematic of host galaxy extinction using cluster ellipticals, and leverage cluster studies through weak lensing, optical, X-ray, and Sunyaev-Zel'dovich measurements. The data will set the stage for improvement of (unbiased) supernova constraints on dark energy time variation by a factor two, and serve as a bedrock scientific resource for cluster studies.

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Investigators:

	Investigator	Institution	Country
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CoI	Dr. Howard K. Yee	University of Toronto	Canada

Number of investigators: 40

* ESA investigators: 6

Target Summary:

Target	RA	Dec	Magnitude
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Observing Summary:

Target	Config Mode and Spectral Elements	Flags	Orbits
		Total orbit request:	0