

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

Principal Investigator: Prof. Saul Perlmutter

Institution: University of California - Berkeley

Electronic Mail: saul@lbl.gov

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
PI	Prof. Saul Perlmutter	University of California - Berkeley	USA/CA
CoI	Dr. Greg Aldering	Lawrence Berkeley National Laboratory	USA/CA
CoI	Prof. L Felipe Barrientos	Universidad Catolica de Chile	Chile
CoI	Dr. Mark Brodwin	Jet Propulsion Laboratory	USA/CA
CoI	Dr. Kyle Dawson	Lawrence Berkeley National Laboratory	USA/CA
CoI	Dr. Arjun Dey	National Optical Astronomy Observatories, AURA	USA/AZ
CoI	Dr. Mamoru Doi	University of Tokyo, Institute of Astronomy	Japan
CoI	Dr. Megan Donahue	Michigan State University	USA/MI
CoI	Dr. Peter Eisenhardt	Jet Propulsion Laboratory	USA/CA
CoI	Prof. Erica Ellingson	University of Colorado at Boulder	USA/CO
CoI	Dr. Vitaliy Fadeyev	Lawrence Berkeley National Laboratory	USA/CA
CoI	Dr. Andrew Fruchter	Space Telescope Science Institute	USA/MD
CoI	Dr. David Gilbank	University of Toronto	Canada
CoI	Dr. Michael Gladders	Carnegie Institution of Washington	USA/DC
CoI	Prof. Gerson Goldhaber	Lawrence Berkeley National Laboratory	USA/CA
CoI	Dr. Anthony H. Gonzalez	University of Florida	USA/FL
CoI*	Prof. Ariel Goobar	Stockholm University	Sweden
CoI	Prof. Henk Hoekstra	University of Toronto	Canada
CoI*	Dr. Isobel Hook	University of Oxford	UK
CoI	Dr. Buell T. Jannuzi	National Optical Astronomy Observatories, AURA	USA/AZ
CoI	Dr. Nobunari Kashikawa	National Astronomical Observatory of Japan (NAOJ)	Japan
CoI	Dr. Marek Kowalski	Lawrence Berkeley National Laboratory	USA/CA
CoI	Dr. Natalia Kuznetsova	Lawrence Berkeley National Laboratory	USA/CA
CoI*	Dr. Christopher Lidman	European Southern Observatory - Chile	Chile
CoI	Dr. Eric Linder	Lawrence Berkeley National Laboratory	USA/CA
CoI	Prof. Lori M. Lubin	University of California - Davis	USA/CA
CoI	Dr. Christopher Mullis	University of Michigan	USA/MI
CoI*	Dr. Nino Panagia	Space Telescope Science Institute - ESA	USA/MD
CoI	Dr. Marc Postman	Space Telescope Science Institute	USA/MD
CoI	Dr. Jason Rhodes	California Institute of Technology	USA/CA
CoI*	Dr. Piero Rosati	European Southern Observatory - Germany	Germany

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CoI	Dr. David J. Schlegel	Lawrence Berkeley National Laboratory	USA/CA
CoI	Dr. Anthony L. Spadafora	Lawrence Berkeley National Laboratory	USA/CA
CoI	Dr. S. Adam Stanford	University of California - Davis	USA/CA
CoI*	Dr. Vallery Stanishev	Stockholm University	Sweden
CoI	Dr. Daniel Stern	Jet Propulsion Laboratory	USA/CA
CoI	Dr. Lifan Wang	Lawrence Berkeley National Laboratory	USA/CA
CoI	Dr. Naoki Yasuda	University of Tokyo, Institute of Cosmic Ray Research	Japan
CoI	Dr. Howard K. Yee	University of Toronto	Canada

Number of investigators: 39

* 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