



<http://kicp-workshops.uchicago.edu/decam-nfc2018/>

WORKSHOP PROGRAM



<http://kicp.uchicago.edu/>



<http://www.kavlifoundation.org/>



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Stars in our Milky Way and galaxies in our Local Group contain the fossils and clues on stellar evolution and supernovae, the formation and evolution of star clusters and dwarf galaxies, and the formation of large spiral galaxies. Rapid progress in this field -- usually called Galactic Archeology -- was enabled by large-area imaging and spectroscopic surveys of old stellar components of the Milky Way and dwarf galaxies, together with simulations of chemical and dynamical evolution. The field of Near-Field Cosmology extends the scope of these studies to probe the formation and evolution of galaxies and the nature of dark matter.

The Dark Energy Survey (DES) is releasing its DR1, with catalogs and images from the first three years of DES operations early in 2018, including 400M objects (100M stellar sources in grizY band to r of 24th magnitude at 10 sigma) over 5000 square degrees mostly in the Southern Galactic cap. This survey is about 2 magnitudes fainter than SDSS at the same S/N. In addition to DES, many other DECam community surveys, such as DECaLS, DECaPS, SMASH, MagLiteS, BLISS, etc, have already had or will soon have the public data release.

Kavli Institute for Cosmological Physics (KICP) at the University of Chicago will host a 3-day workshop on June 27-29 to explore uses of the DES DR1 for near field cosmology studies in conjunction with other DECam public data. Furthermore, the workshop will explore possible synergies with other spectroscopic surveys as well as Gaia DR2.

The 3-day workshop will include presentations and discussion on the first two days and a hack day on the last day. Breakfast and lunch will be provided at the workshop, together with an evening reception on Jun 27.

Topics in this workshop includes:

- * Dark Matter and Near-Field Cosmology
- * Milky Way satellite galaxies - satellites of satellites, planes of satellites, dark matter particle physics
- * Stellar streams and halo overdensities -- constraints on Milky Way dark matter halo
- * First stars; Reionization; Chemical Evolution -- r-process variation
- * Time series photometry and RR Lyrae stars -- distant structure tracers
- * Local Group and Nearby Galaxies -- Ultra-Diffuse Galaxies
- * Synergy with GAIA DR2 and other spectroscopic programs/surveys.
- * Synergy with other DECam surveys and/or other imaging surveys.

Organizing Committee

Jo Bovy
University of Toronto

Jeffrey Carlin
LSST

Alex Drlica-Wagner
Fermilab/KICP

Kathryn Johnston
Columbia University

Andrey Kravtsov
UChicago/KICP

Ting Li
Fermilab/KICP

Jennifer Marshall
Texas A&M University

Heidi Newberg
Rensselaer Polytechnic Institute

David Sand
University of Arizona

Brian Yanny
Fermilab

Wednesday - June 27, 2018

8:30 AM - 9:00 AM	Breakfast
	MORNING SESSION 1
	<i>Chair: Ting Li</i>
9:00 AM - 9:10 AM	Ting Li , Fermilab/KICP <i>Welcome</i>
9:10 AM - 9:40 AM	Matias Carrasco Kind , National Center for Supercomputing Applications (NCSA) <i>The Dark Energy Survey DRI</i>
9:40 AM - 10:10 AM	Eddie Schlafly , LBL <i>DECaLS and DECaPS: DECam Surveys of the Northern Galactic Cap and Southern Galactic Plane</i>
10:10 AM - 10:30 AM	Nora Shipp , University of Chicago <i>Stellar Streams Discovered in the Dark Energy Survey</i>
10:30 AM - 11:00 AM	Coffee Break
	MORNING SESSION 2
	<i>Chair: Jo Bovy</i>
11:00 AM - 11:20 AM	Ana Bonaca , Harvard <i>What are the tidal streams constraining?</i>
11:20 AM - 11:40 AM	Nilanjan Banik , Leiden University/GRAPPA, University of Amsterdam <i>Distinguishing between warm and cold dark matter using gaps in stellar streams</i>
11:40 AM - 12:00 PM	Adrian Price-Whelan , Princeton University <i>The Gaia DR2 view of the GD-1 stream</i>
12:00 PM - 12:15 PM	Ting Li , Fermilab/KICP <i>Tucana III Stream: a stream perturbed by LMC</i>
12:15 PM - 12:35 PM	Discussion: Streams
12:35 PM - 2:00 PM	Lunch
	AFTERNOON SESSION 1
	<i>Chair: Brian Yanny</i>
2:00 PM - 2:30 PM	Robert Nikutta , NOAO <i>The NOAO Data Lab</i>
2:30 PM - 2:50 PM	Heidi Jo Newberg , Rensselaer Polytechnic Institute <i>The substructure of the stellar halo as measured with SDSS turnoff stars and MilkyWay@home</i>
2:50 PM - 3:10 PM	Carl J Grillmair , Caltech/IPAC <i>FOSSILs in the Galactic Halo</i>
3:10 PM - 3:30 PM	Adriano Pieres , Laboratorio Interinstitucional de e-Astronomia - DES/Brazil <i>Fitting the Milky Way structural parameters using DES data</i>
3:30 PM - 4:00 PM	Coffee Break
	AFTERNOON SESSION 2
	<i>Chair: Heidi Newberg</i>
4:00 PM - 4:20 PM	Natalie Price-Jones , University of Toronto <i>Revealing the evolution of the Milky Way with chemical tagging</i>
4:20 PM - 4:40 PM	Vinicius Placco , University of Notre Dame <i>The Age Structure of the Milky Way Halo revealed by DES</i>
4:40 PM - 5:00 PM	Yumi Choi , University of Arizona <i>SMASHing the LMC</i>
5:00 PM - 5:20 PM	Peter Ferguson , Texas A&M University <i>RR-Lyrae in the Dark Energy Survey</i>
5:20 PM - 5:40 PM	Lina Necib , Caltech <i>Dark Matter in disequilibrium, the local velocity distribution from SDSS-Gaia DR2</i>
5:40 PM - 6:00 PM	Discussion: Milky Way Halo
6:00 PM	Welcome Reception

Thursday - June 28, 2018

8:30 AM - 9:00 AM	Breakfast
	MORNING SESSION 1
	<i>Chair: Jennifer Marshall</i>
9:00 AM - 9:20 AM	Alex Drlica-Wagner , Fermilab/KICP <i>Searching for Magellanic Satellites with DECam</i>
9:20 AM - 9:40 AM	Stacy Y Kim , Ohio State University <i>There is No Missing Satellites Problem</i>
9:40 AM - 10:00 AM	Ethan O Nadler , KIPAC/Stanford <i>Modeling Subhalos and Satellites in Milky Way-like Systems</i>
10:00 AM - 10:20 AM	Andrew Pace , Texas A&M University <i>Proper motions of Milky Way Ultra-Faint satellites with Gaia DR2 \times DES DR1</i>
10:20 AM - 10:50 AM	Coffee Break
	MORNING SESSION 2
	<i>Chair: David Sand</i>
10:50 AM - 11:10 AM	Jennifer Marshall , Texas A&M University <i>Chemical Abundances of the Milky Way Satellites in DES</i>
11:10 AM - 11:30 AM	Andrew S Graus , University of California, Irvine <i>Reionization and the radial distribution of satellites</i>
11:30 AM - 11:50 AM	Kristen McQuinn , University of Texas at Austin <i>Low-Mass Galaxies Discovered in the ALFALFA survey</i>
11:50 AM - 12:10 PM	Jeffrey L. Carlin , LSST <i>Near-Field Cosmology with Resolved and Unresolved Stellar Populations Around Low-Mass Local Volume Galaxies</i>
12:10 PM - 12:30 PM	Discussion: Dwarf Galaxies
12:30 PM - 2:00 PM	Lunch
	AFTERNOON SESSION 1
	<i>Chair: Jeffrey Carlin</i>
2:00 PM - 2:20 PM	Eric F Bell , University of Michigan, Ann Arbor <i>A Lonely Giant: The Sparse Satellite Population of M94 Challenges Galaxy Formation</i>
2:20 PM - 2:40 PM	David Sand , University of Arizona <i>Finding young star-forming galaxies in wide-field imaging datasets</i>
2:40 PM - 3:00 PM	Shany Danieli , Yale <i>Hunting Low Surface Brightness Galaxies in the Local Volume with the Dragonfly Telephoto Array</i>
3:00 PM - 3:20 PM	Loay Khalifa , DePaul University <i>Probing the Non Linearity in Galaxy Clusters Through the Analysis of Fractal Dimension Via Wavelet Transform</i>
3:20 PM - 3:40 PM	Denise M Schmitz , California Institute of Technology <i>Time evolution of intrinsic alignments of galaxies</i>
3:40 PM - 4:00 PM	Discussion: Beyond the Milky Way
4:00 PM - 4:30 PM	Coffee Break
4:30 PM - 5:30 PM	DES DR1 Data Access Tutorial and Hands-on

Friday - June 29, 2018

8:30 AM - 9:00 AM	Breakfast
	MORNING TUTORIAL SESSION
	<i>Chair: Ting Li</i>
9:00 AM - 10:00 AM	NOAO Data Lab Data Access Tutorial and Hands-on
10:00 AM - 10:30 AM	DECaLS Interactive Tools
10:30 AM - 11:00 AM	Coffee Break
	HACK SESSION
	<i>Chair: Alex Drlica-Wagner</i>
11:00 AM - 11:30 AM	Hack Overview
11:30 AM - 5:00 PM	Break Out Hack Sessions Available rooms: 401, 419, 445 and the Schramm Lounge
11:45 AM - 12:00 PM	Lunch (Lunch Boxes)
12:00 PM - 1:00 PM	SPECIAL FRIDAY SEMINAR
	<i>Speaker: Jo Bovy</i>
	<i>Talk: Mapping the Milky Way in 6D with Gaia</i>
3:30 PM - 4:00 PM	Coffee Break
5:00 PM - 5:30 PM	Hack Tag-up