Program Information for 2018A-0386

PI: Alfredo Zenteno, NSF's NOIRLab, alfredo@ctio.noao.edu
Address: Casilla SN, La Serena Chile

CoI: Rodrigo Carrasco, Gemini Observatory
CoI: Regis Cartier, NSF's NOIRLab
CoI: Kathy Vivas, NSF's NOIRLab
CoI: Marcelle Soares-Santos, Brandeis U.
CoI: Alex Drlica-Wagner, FNAL
CoI: Arjun Dey, NSF's NOIRLab
CoI: Finogenov Alexis, U. of Maryland
CoI: Jose L Nilo Castellon, Universidad de La Serena
CoI: Hector Cuevas, Universidad de La Serena
CoI: Amelia Ramirez, Universidad de La Serena
CoI: Patricia Arevalo, Universidad de Valparaiso
CoI: Joseph Mohr, Ludwig-Maximilian Universitat-Muchen
CoI: Matthias Klein, Max Planck Institut fur Astrophysik
CoI: Holger Israel, Universitats-Sternwarte Muenchen
CoI: Nicola Napolitano, INAF
CoI: Mario Radovich, INAF
CoI: Andrea Merloni, Max Planck Institut fuer extraterrestrische Physik
CoI: Tom Dwelly, Max Planck Institut fuer extraterrestrische Physik
CoI: M Salvato, Max Planck Institut fuer extraterrestrische Physik

Title: Completing the Southern eROSITA Sky with DECam

Abstract: The eROSITA X--ray telescope is scheduled for launch in September 2018, and will map the whole sky to find $sim 10^5$ galaxy clusters and $sim 3times 10^6$ AGN. By June 2019, eROSITA will have already completed the first of eight planned passes over the full sky. We have identified area deg^2 of the Southern sky that does not currently have the necessary optical imaging depth to complement the eROSITA observations. We propose to use DECam to observe this area. These data will enable the optical confirmation of $sim 4,000$ clusters and $sim 10^5$ X-ray selected AGNs. With a depth of m^*+1 up to redshift 0.8 for cluster red sequence galaxies we will be able to obtain robust cluster redshifts, a crucial component of the primary eROSITA science goals to test cosmological models, and to study structure formation and evolution. Also, with the proposed data we will characterize the bright end of the cluster luminosity function, and will study the galaxy cluster populations as a function of the cluster dynamical state. Furthermore, the proposed observations will provide targets for the spectroscopic surveys (e.g., 4MOST and DESI), to provide high quality templates for Gravitational Wave progenitor searches, and as an initial epoch for the LSST sky survey.

Program Type: Standard/Extragalactic

Scheduled Nights:

Run 1 (2018A): CT-4m/DECam -- 5.5n on Apr 28 - May 02 2018, Jul 24 - Jul 29 2018
Run 1 (2018B): CT-4m/DECam -- 1.5n on Sep 22 2018, Jan 17 - Jan 18 2019