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国台学术报告 NAOC COLLOQUIUM

2018 年 第 31 次 / No. 31 2018

Time: Wednesday 2:30 PM, Oct. 24th **Location: A601, NAOC**

Fundamental limits to the precision in astrometry and photometry using array detectors

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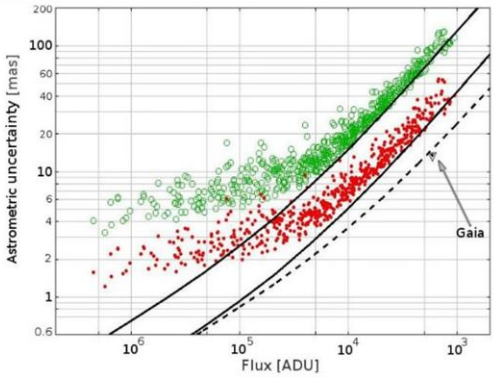
Prof. Rene A. Mendez is an associate professor at the Astronomy Department of Universidad de Chile - DAS. He holds a Ph. D. from Yale University, having graduated in 1995. He had postdoctoral experience at ESO in Garching (Germany), and at Cerro-Tololo Inter-American Observatory (AURA in Chile). He then moved as an ESO Staff member, where he was Team Leader for the medium-sized telescopes at La Silla Observatory (these included the Max Planck 2.2m, the Danish 1.54m, the ESO 1.52m, and the 1m Schmidt Telescope). In 2004 he moved as a professor to DAS. His main research interests include Galactic structure and Milky Way kinematics & dynamics (including satellites of the MW), characterization and census of the solar neighborhood, visual binary stars, and statistics applied to astronomy. The main resources he uses to do his research include optical & near-IR photometry, high-precision narrow-field astrometry and interferometry, and collaborating with smart people who do spectroscopy. He enjoys being close to the seashore and flying kites.

Abstract

Digital detectors have been in use for astronomical research since the early 80's, with the inception of Charge-Couple Devices (CCDs) for civil applications. Nowadays CCDs are the the most widely used detector at optical wavelengths in all major professional observatories around the globe - as well as in space-based observatories - and the expectation is that this type of detector will accompany us for several more years. Since CCD detectors have a well-characterized behavior, and motivated by the ever increasing measurement precision achieved by them, we have started to explore ways to characterize the maximum precision limits to astrometry (location) and photometry (brightness) that could possibly be achieved by these type of detectors under realistic experimental (observing) conditions, using the Cramer-Rao theorem. In this talk I will present some results of these efforts from our inter-disciplinary group, I will also discuss about the practical achievability of this bound and some potential applications.



All are welcome ! Tea and coffee will be served at 2:15 PM.