Conference: 217th American Astronomical Society Conference
Location: Seattle, WA
Dates: Jan. 9-11, 2011

Title: "RATIR: Reionization and Transients Infra-Red camera A new instrument > to identify high red-shift GRBs"

Presenter: David Rapchun

Abstract:

We are currently constructing the cryogenic infrared portion of the RATIR instrument at NASA's Goddard Space Flight Center (GSFC) in collaboration with University of California, Berkeley (UCB) and The University of Mexico (UNAM). The infrared instrument will consist of two 2048x2048 Hawaii 2RG detectors, one on axis and one off axis using diachronic. The detectors will be operated using state-of-the-art Teledyne SIDECAR (System Image, Digitizing, Enhancing, Controlling, And Retrieving) ASICs (Application-Specific Integrated Circuits) similar to NIRSpec on JWST. The visible portion of the instrument is currently being developed at UCB consisting of two CCD imagining cameras. Once completed, the two sections will be integrated into the RATIR instrument. Mounted on a dedicated, fully-automated 1.5-m telescope, the instrument will provide rapid (<10 min) identification of VHR GRBs allowing high-resolution spectroscopic follow-up observations with large aperture telescopes possible. The hosting Observatorio Astronomico Nacional of the Universidad Nacional Autónoma de México (UNAM), located on the Sierra de San Pedro Martir in Baja California, Mexico, provides great seeing (~1 arcsec), good weather, dark skies, and significant sky coverage so that RATIR will detect a significant number of Swift afterglows. While not all GRBs will be at high red shifts, the resulting light curves, combined with X-ray/UV observations, will address several open questions, including the nature of both "dark GRBs" and the GRB emission mechanism.