High Time Resolution Astrophysics

Are you an Andor customer using one of our products for High-Time Resolution Astronomy? If so, please get in touch - we would love to hear more about your research. *

OPTICAM

OPTICAM[1,2] is a high-speed instrument allowing to perform three-color simultaneous optical imaging (320 -1000 nm). This system is based at the 2.1 m telescope in San Pedro Mártir Observatory, Mexico. OPTICAM will enable studies of very fast astrophysical phenomena in the millisecond to seconds range targeting pulsating WDs, accreting compact objects, EBs, exoplanets and X-ray binaries. The instrument utilizes three Andor Zyla 4.2P sCMOS cameras.

Zyla sCMOS

KPED

The Kitt Peak EMCCD Demonstrator (KPED)[3,4] is an instrument based at the 2.1m telescope at Kitt Peak National Observatory, USA. The telescope is fully robotic and in combination with KPED, it allows for high cadence photometry and follow-up observations of short period white dwarf binary candidates, short duration transient and periodic sources.

iXon Ultra 888

CHIMERA

The Caltech high-speed multi-color camera (CHIMERA)[5,6,7] is a two-color, high-speed, wide-field instrument based at the prime focus of the 5.1m telescope at Palomar Observatory, USA. CHIMERA offers to monitor objects which vary on timescales between milliseconds up to hours. This includes short duration transient and periodic sources (e.g., EBs, flaring stars, transiting planets) and the detection of faint near-Earth asteroids (NEAs) and sub-km Kuiper Belt Objects (KBOs) via occultation.

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BOOTES

The Burst Observer and Optical Transient Exploring System (BOOTES)[8-10] is a global network of robotic telescopes, which are based in, e.g., New Zealand, China, Mexico and Spain. The aim of this network is to provide follow-up observations of transient phenomena, such as Gamma Ray Bursts (GRBs) or the monitoring of variable stars.

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TAROT

The Rapid Action Telescope for Transient Objects[11,12] (Télescope à Action Rapide pour les Objets Transitoires – TAROT) is an international network of robotic telescopes based in France, Chile and Australia. This network performs observations of various astronomical objects and phenomena, ranging from satellite tracking to optical counterparts of Gamma Ray Bursts (GRBs).

iKon-L 936

Mini-Mega TORTORA

Mini-Mega TORTORA[13] is a robotic 9-channel wide-field instrument offering sub-second temporal resolution, operating since 2014. It systematically monitors the sky and is based at the Special Astrophysical Observatory in Russia. This instrument provides detections of fast transient events including artificial satellites and faint meteors.

Neo 5.5 sCMOS

GASP

The Galway Astronomical Stokes Polarimeter (GASP)[14,15] is an instrument, which allows to perform high-time resolution optical photometry as well as polarimetry. GASP is supported by two Electron Multiplying Charge-Coupled Devices (Andor iXon EMCCDs) and is providing observations of various compact objects (e.g., AGNs, optical pulsars, magnetars).

iXon Ultra 897

POETS

The camera system POETS stands for "Portable Occultation, Eclipse and Transit System"[16]. This instrument is optimized to study, for example, stellar occultations by small solar system bodies and related observations. POETS is a system which can be transported as carry-on luggage and it can be used at various observing facilities. It also offers a compact GPS timing system with microsecond accuracy and relies on high frame rate and low noise EMCCD cameras.

iXon Ultra 888/897

SHOC

The South African Astronomical Observatory (SAAO) hosts two high time resolution instruments called Sutherland High-Speed Optical Cameras (SHOC)[17,18]. SHOC is based on the POETS[16] camera system design and allows for observations of, for example, stellar occultations and high speed photometry of faint cataclysmic variable stars.

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