



量子物理学・ナノサイエンス第 166 回セミナー

The Zwicky Transient Facility

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概要

The Zwicky Transient Facility (ZTF) has been designed with a singular focus: a systematic exploration of the night sky at a magnitude level well suited for spectral classification and follow up with the existing class of 4-m to 10-m class telescopes. ZTF is a public-private partnership with equal contributions from a consortium of world-wide partners and an NSF MSIP grant. The discovery engine for ZTF is a 47 square degree camera (realized through 16 e2V monolithic CCDs) that fills the entire focal plane of the 48-inch Oschin telescope of the Palomar Observatory. This clarity allows an exploration of different cadences and thus opens up the possibility for a thorough exploration of the dynamic optical sky. In short, ZTF is an experiment of Time Domain Astronomy (TDA) experiments.

ZTF consists of a 47 square degree camera on the Palomar Oschin 48-inch telescope (P48) and the Spectral Energy Distribution Machine (SEDM), a low resolution IFU spectrograph tuned for variability/transient classification, on the Palomar 60-inch telescope. The SEDM is already commissioned and the camera on P48 is expected to see first light in January 2017. At the short cadence end, ZTF will detect one young supernova (<1 day) every day. For mid-cadence we expect a veritable explosion of cosmic explosions. For long cadence, ZTF will be a prodigious factory for Tidal Disruption Events and Super-Luminous Supernovae. Visiting the Galactic Plane 300 times a year ZTF will be prove to be a bonanza for stellar astronomers. Since ZTF is PI-led effort there is considerable room for innovation and rapid implementation. In short, ZTF is a TDA pathfinder for LSST.

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