



# High Energy, Cool Transients: Investigating Infrared-Luminous Outbursts with Spitzer

- 講師** : Dr. Ryan M. Lau  
California Institute of Technology
- 日程** : 7月4日 (火) 13:20-15:00
- 場所** : 本館3階 H345 理学院第2会議室

## 概要

The Spitzer Space Telescope is pioneering the exploration of infrared (IR) luminous transients. In our Spitzer InfraRed Intensive Transients Survey (SPIRITS), we are conducting a systematic search of 200 nearby galaxies for IR-luminous outbursts that elude detection in traditional optical surveys. In this talk, I will present two puzzling discoveries from SPIRITS and discuss open questions and the plans to address them.

SPIRITS has revealed a new class of obscured, red transients with mid-IR luminosities between novae and supernovae that do not exhibit optical counterparts. We call them SPRITEs (eSPecially Red Intermediate-luminosity Transient Events). The key to disentangling the various possible physical origins of SPRITEs is IR spectroscopy, which can only be obtained with the unprecedented sensitivity of the upcoming James Webb Space Telescope (JWST). I will discuss possible SPRITE origins and the JWST Guaranteed Time Observation (GTO) program I am leading to determine their nature.

In SPIRITS, we serendipitously discovered variable mid-IR counterparts of ultraluminous X-ray sources (ULXs). A ULX is an off-nuclear point source showing extreme, super-Eddington X-ray luminosities thought to be driven by accretion onto a compact object in a close binary undergoing Roche Lobe overflow. We attribute the mid-IR emission to a circumbinary dust disk produced by the outflow from the supergiant donor star, but the nature of the variability is still uncertain. I will discuss the work I have led on dusty ULXs and highlight the importance of coordinated multi-wavelength observations.

**連絡教員** 物理学系 谷津 陽一 (内線 2388)