量子物理学・ナノサイエンス第 53 回特別セミナー

SIFTING FOR SAPPHIRES: SYSTEMATIC SELECTION OF TIDAL DISRUPTION EVENTS IN iPTF

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日程　：　2 月 5 日（月）10:30–

場所　：　本館 2 階　H284A　物理学系輪講室

概　要

The biggest challenge to finding tidal disruption events (TDEs) in optical transient sky surveys is to get rid of the numerous interlopers such as AGN and Type Ia supernovae that are at least 100 times more common. I will describe my photometric selection process that led to the prompt discoveries of two TDEs (iPTF16axa and iPTF16fnl) in a 4-month long experiment to study nuclear transients in the intermediate Palomar Transient Factory (iPTF) together with UV and X-ray imaging follow-up from our Swift Cycle 12 Key Project. Detailed multi-wavelength follow-up observations were triggered to study these rare events. We found that most of the optically-bright TDEs share similar peak luminosities, light curves, and temperature evolution except iPTF16fnl, which is the nearest, faintest, and fastest optical TDE ever found. Finally, I will close with prospects for the next generation survey - Zwicky Transient Facility (ZTF). Based on our detection rate in iPTF, we expect to discover ~30 TDEs in the first year of ZTF, doubling the current TDE sample aggregated over ~7 years of wide-field optical surveys.

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2018 年 2 月