**The Fast and the Furious: Flare observation from the Thai National Observatory**

P. Irawati1 and J. G. Doyle2

1 National Astronomical Research Institute of Thailand, 260 Mue 4 Don Kaew,  
Maerim, Chiang Mai 50180  
2 Armagh Observatory and Planetarium, College Hill,  
Armagh BT61 9DG, N. Ireland

ABSTRACT

Flares are fast and energetic events commonly found in stars with deep convective envelopes. The events, typically last for tenths of seconds for small flares and up to several minutes for super-flares, cause the brightness of the objects to swiftly increase within the first few seconds. Therefore, fast photometry with sub-second resolution is crucial to get high-time resolution data of these kinds of phenomena. In this work, we report our effort to observe several flaring stars using the frame-transfer EMCCD ULTRASPEC camera at the 2.4m Thai National Telescope. The main goals of this project is to find links between stellar and solar flares by searching for quasi-periodic processes during the flare events in a few isolated M-stars. We tested different instrument configurations, with and without the avalanche gain of the EMCCD, to reach the sub-second integration time while still keeping decent SNR. We were able to observe one super-flare and several smaller flares with SNR~60 using 0.5sec integration in SDSS u’ filter during our nights in January. However, a further trial for observation in later months was heavily hindered by the sky condition, which will constrain the observing window for future observation.

*Keywords: High-speed Photometry; Flare; M-stars*

|  |  |
| --- | --- |
|  |  |
|  |  |