

Proposal Abstract:

Although most of fast radio bursts (FRBs) show a singular pulsation event, some of them are observed with repetitive bursts. Since 2010s, various theoretical models have been proposed to explain the nature of FRB while the information from radio observations did not provide efficient information on the physical origin of FRB repeaters. On the other hand, FRB optical counterparts have been theoretically predicted by different scenarios, but their characteristics have never been confirmed observationally. Further information from multi-wavelength observations thus plays a crucial role in understanding the nature of FRB. The TriColor CMOS Camera and Spectrograph (TriCCS), a high-speed camera mounted on the 3.8-m Seimei telescope is capable to conduct milliseconds exposures in multiple optical bands simultaneously. The high scheduling flexibility and large aperture of Seimei together with the ultra-fast multicolor imaging capability make Seimei/TriCCS one of the most powerful facilities of searching FRB optical counterparts. Given the high sensitivity of monitoring FRBs with FAST and a close location between FAST and Seimei, here we propose simultaneous observations of the two telescopes for searching optical counterparts of active repeating FRBs in cycle 2024. The observational result will tightly constrain or even directly unveil the origin of FRB (repeaters).