

Possible observation on the 2024 outburst of recurrent nova T CrB with LHAASO

T Coronae Borealis (T CrB), located at R.A. = 239.88° , Dec = 25.92° , is a famous recurrent novae, with two recorded fast nova eruptions in 1866 and 1946. In the 1946 eruption, the magnitude of T CrB peaks at 2.0^m , which is the brightest nova event from 1943–2022. Recently, Schaefer (2023) observed the long-term monitored magnitude had a pre-eruption dip starting March/April 2023 and predicts that the eruption date would be 2024.4 ± 0.3 if the dip is similar to that in 1945. Maslennikova et al. (2023) predicts January 2024 with further 2023 photometry.

Inspiring by the previous observations of the very-high-energy gamma-rays from novae and the maximum particle energy estimated under physical conditions, taking the extreme brightness of its last eruption, the position close to the zenith of LHAASO and a distance of only 0.9kpc into consideration, we may have chance to observe the TeV emission from the next outburst of T CrB with the extraordinary sensitivity of LHAASO. We propose to monitor T CrB's 2024 outburst in TeV with LHAASO.

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