

High speed imaging systems at Hida observatory for the research of high energy particles in solar flares

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A new imaging system for observing solar flares was installed on the Solar Magnetic Activity Research Telescope (SMART) at the Hida observatory of Kyoto University with a support of the joint research program of the Solar-Terrestrial Environment Laboratory of Nagoya University. The aim of the system is to diagnose the non-thermal particles, their acceleration site and the trigger of solar flares by capturing rapid temporal and spatial evolution of flare kernels observed in the solar chromosphere and photosphere at the onset of flares. The system simultaneously takes H α and continuum images covering a field of view of 344 arcsec x 258 arcsec at a rate of 25 frames/sec. The first-light images were taken in August 2011 and two white light flares were successfully observed on 6 and 7 September. We report the performance of the new observing system, its initial results and our plan for conducting the research on particle acceleration and the trigger mechanism of solar flares.

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