

Fast Imaging Solar Spectrograph System in New Solar Telescope

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Abstract

In 2004, Big Bear Solar Observatory in California, USA launched a project for construction of the world largest aperture solar telescope ($D = 1.6\text{m}$) called New Solar Telescope (NST), partly collaborate with University of Hawaii (UH) and Korea Astronomy and Space Science Institute (KASI). NST is designed off-axis parabolic Gregorian reflector with very high spatial resolution (0.07 arcsec at 5000\AA) and is equipped with several scientific instruments such as Visible Imaging Magnetograph (VIM), InfraRed Imaging Magnetograph IRIM) and so on. Since these scientific instruments are focused on the studies of the solar photosphere, we need an post-focus instrument for NST to study the fine structures and the dynamic patterns of the solar chromosphere and low Transition Region (TR) layer, including filaments/prominences, spicules, jets, micro flares, etc. For this reason, we developed and installed a fast imaging solar spectrograph (FISS) system on the NST which is good possibility of achieving compact design with high spectral resolution and small aberration as well as recording many solar spectral lines in the single and/or dual band mode. FISS was installed May, 2010 and now we are going on test observation. In this talk, we will introduce the FISS system and the results of test observation after FISS installation.