[ID01] Development of a Correlation Tracker System for New Solar Telescope

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We are developing a correlation tracker for the New Solar Telescope (NST), which will be installed at Big Bear Solar Observatory (BBSO) in 2007. In this talk, we present a progress report on the development of the correlation tracker which is an image stabilization system to minimize image jitter induced by atmospheric turbulence and mechanical vibrations of the telescope. It consists of a two-axis piezo platform with tilt range of about ± 1 mrad as a compensator and a high-speed CMOS camera to sense the tip/tilt component of a deformed wavefront. The system has been preliminarily implemented in a laboratory and currently, shows the closed loop bandwidth of a few hundred Hz. After final testing and evaluation, the developed system is supposed to be installed to the NST in the end of this year.

[ID02] Development of Fast Imaging Solar Spectrograph for the New Solar Telescope at Big Bear Solar Observatory: Progress Report

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Solar astronomy group at Seoul National University, and Solar and Space Weather Research Group at KASI are developing a Fast Imaging Solar Spectrograph(FISS) to be used as one of the major post-pocus instruments in the New Solar Telescope (NST) at Big Bear Solar Observatory. It has two main objectives. One is to study the fine-scale structure and dynamics of cool plasma in the photosphere and chromosphere that include prominences/filaments, flares, surges, fibrils, spicules, and so on. The other is the calibration of narrow-band filters used in Big Bear such as visible and near-infrared Fabry-Perot etalons and Lyot filters. The spectrograph is a fully reflecting system using mirrors and an Echelle grating, and performs imaging by the slit scan with fast CCD cameras. It has a focal length of about 1.5 m and has a spectral resolving power up to 2×10^5. It is possible to record Hα line and Ca II IR line simultaneously in the dual band mode. Other lines in the visible and NIR may be recorded individually in the single band mode. We will introduce the basic concepts of FISS, the current status of the optical design, and the construction plan.