[구ID-03] CFHT: another opportunity for Korean Astronomy?

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Canada-France-Hawaii Telescope

After a short description of the observatory, this presentation will highlight some of the most recent scientific achievements based on CFHT observations and how they benefit from the current instrumentation and novel observing modes proposed to the CFHT users. We will then move to the mid-term future with the development of new spectroscopic capabilities (visible wide-field FTS or near-IR spectro-polarimetry) and the study of a novel wide-field imager in the visible using Ground-Layer AO to provide unprecedented image quality on a large field of view. As an option for the long-term future, the concept of a next generation 10-m class telescope to replace the current CFHT 3.6-m will be described. An emphasis will be given on how CFHT is slowly morphing into an Asia-Pacific Rim observatory and on the role the Korean community could play in such an endeavor, from immediate access to first-class astronomical data to partnering with other nations in exciting developments.

[구ID-04] Development of medium resolution cross-dispersed silicon grisms in the Near Infrared ; Direct Silicon wafer bonding technique

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We are developing medium resolution cross-dispersed silicon grisms in the near IR region (1.45~5.2 μm). The grisms will be installed in MIMIR, a multifunction instrument at the Lowel Observatory, USA. The two devices are designed to cover H and K band and L and M band simultaneously. Our goal is to make grism with R=3000 at 1.2 arcsec slit. The Silicon has high refractive index (n=3.4 at 1.5μm) which enhances the resolving power by up to 5 times when compared to conventional material such as BK-7 (n=1.5 at 1.5 μm). The bonded grisms will be installed in a filter wheel for the uses switch from spectroscopic mode to imaging mode easily. Our device is compact and light weighted while it provides a decent resolving power. We produce monolithic grisms using e-beam lithography at the NASA JPL and chemically etching the grooves on the silicon prisms. Moreover, the main-disperser and cross-disperser will be contacted together by direct Si-Si bonding technique and eventually turn into one piece. The bonded pair offers more stability in terms of the layout of the spectrum and removes the Fresnel loss at the intersection of two grisms. We report on the proper wafer bonding steps through this research, and inspected the bonding quality thermally, optically and mechanically.