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Linear Astigmatism Free - Three Mirror System (LAF-TMS) is the linear astigmatism free off-axis wide field telescope with $D = 150$ mm, $F/3.3$, and $FOV = 5.51^\circ \times 4.13^\circ$. We report the design and analysis results of its mirrors and optomechanical structures. Tolerance allowance has been analyzed to the minimum mechanical tolerance of ± 0.05 mm that is reasonable tolerance for fabrication and optical alignment. The aluminum mirrors are designed with mounting flexure features for the strain-free mounting. From Finite Element Analysis (FEA) results of mounting torque and self-weight, we expect 33 - 80 nm RMS mirror surface deformations. Shims and the L-bracket are mounted between mirrors and the mirror mount for optical alignment. The mirror mount is designed with four light-weighted mechanical parts. It can stably and accurately fix mirrors, and it also suppresses some of stray light.

[포 AT-02] SNU Astronomical Observatory 1-m Telescope: Overview and 2018A Operation

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Astronomy education and research can benefit from a high performance telescope that is easily accessible in campus. Such a facility allows hands-on education of observations, small research projects, test of new instruments, and time-domain study of astronomical phenomena. Recently, SNU reconstructed a 40-year old observatory (also known as 구천문대), and established the new SNU Astronomical Observatory (SAO) on that site. On 2018 March 27, the 1-m optical telescope was successfully installed at SAO.

Since then, this telescope has been producing wonderful images, with the best seeing value recorded being as small as 0.85 arcsec. This poster will give an overview of the 1-m telescope, and its performance based on test observations during the 2018A semester.

[포 AT-03] Imaging System Wavefront Analysis Using Ronchi Test

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Ronchi test is an optical test to check the quality of an imaging system. Wavefront of the optical system can be obtained from the Ronchi patterns. In this poster, we present the Ronchi test module and the optical quality evaluation results. The test module consists of a light source, a pinhole, a beam splitter, a Ronchi ruling and a flat mirror. The test module can be simply adapted to any optical systems. We compare measured surface data for both aluminum and glass parabolic mirrors by analyzing the Ronchi patterns.

[포 AT-04] Software Modeling for Flexure Compensation System (FCS) prototype of the Giant Magellan Telescope Multi-object Astronomical and Cosmological Spectrograph (GMACS)

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We proceed to develop the control software of GMACS, which is a wide-field, multi-object, moderate-resolution optical spectrograph for the Giant Magellan Telescope (GMT). Flexure Compensation System (FCS) prototype is one of the electronics and mechanical prototypes for GMACS. In this poster, we present the software design for the FCS prototype by using the software system modeling language, SysML. We also show two development tools to control the prototype that communicates via EtherCAT: using TwinCAT and Visual C++ on Windows 10, and GMT Software Development Kit (SDK) and C++ on Linux. We discuss the way to design the GMACS control software, which would not depend on the development tools.