

**[구AT-05] The Tip-Tilt Correction System in AO System for Gwacheon 1m Telescope**

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We are developing Adaptive Optics (AO) system for 1m telescope at Gwacheon National Science Museum Observatory. The beam spot of the Gwacheon 1m telescope.

The tip-tilt correction system consists of a CMOS sensor, a tip-tilt mirror and a feedback loop. The beam spot location at the CMOS sensor indicates the tip-tilt components of the incoming light. The tip-tilt mirror is controlled by DAC output voltage calculated by proportional-integral-derivative (PID) controller. This system successfully corrects the tip-tilt motion of the spot.

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**[구AT-06] A Study of Optical Follow-up Pipeline for Gravitational-Wave transients using QUEST data**

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The direct detection of gravitational wave has a very important meaning as a basis for verification of the theory of relativity. Several laser interferometer detectors have attempted to detect GW directly (e.g. LIGO, VIRGO), but positional accuracy of GW detector is too wide (about  $10^{\sim}100\text{sq deg}$ ) to find which objects emit GW. One of the main sources of GW is gamma-ray burst which can be detected even in electromagnetic wave. Then to verify Gamma-ray burst object as a GW source, we proceed EM follow-up observation with wide field of view. A first program initiating EM follow-ups to possible transients GW events has been developed and exercised by LIGO and VIRGO community in association with several partners. Using QUEST optical data, we tested the method of cross-convolution recommended by EM follow-up community. We will describe the results of that test.