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## Status Report on AO Development at TARA

We have initiated the development of key adaptive optics (AO) technologies in Taiwan. Our current efforts include simulating atmospheric turbulence based on the Kolmogorov model and conducting simulations of Shack-Hartmann wavefront sensors (SHWFS). We are actively developing and testing wavefront reconstruction algorithms, along with a real-time interface for acquiring SHWFS data and performing wavefront correction. In parallel, we are building capabilities for deformable mirror (DM) control, covering both hardware operation and software integration.

This work lays the groundwork for Taiwan's future AO developments. To gain experience with 10-meter class telescopes, we are collaborating with the Subaru ULTIMATE AO team. We are also planning to participate in a project on turbulence profiling and system integration for AO-assisted satellite optical communication—an initiative that expands AO applications beyond astronomy.

In this talk, I will present the current status of our work and outline future plans for AO development in Taiwan.

### Section

Facility Program

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