

Optical design of prototype mid-infrared high-dispersion spectrometer (ProtoIRHS) for Subaru Telescope

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In order to observe detail spectra of interstellar molecules and dusts, we started the development the mid-infrared high-dispersion spectrometer for Subaru Telescope. This spectrometer uses an epochmaking dispersing optical element, Germanium immersion grating. We need to manufacture the prototype of this spectrometer to confirm the performance of immersion grating.

The author designed the optics of the prototype spectrometer. The concept of design is to compose the compact and simple optics. As a result of the estimation of performance, we completed the optical design that has enough performance to observe the object with resolving power of 50,000.