

[IGRINS-03] IGRINS Exposure Time Calculator

Huynh Anh Nguyen Le¹, Soojong Pak¹, Wonseok Kang¹, Jongmin Lee²,
 Sungwon Lee², Andreas Seifahrt³, Daniel T. Jaffe⁴

¹*School of Space Research, Kyung Hee University,* ²*Dept. of Computer Engineering,*
³*Physics Department, Univ. of California at Davis,* ⁴*Dept. of Astronomy, Univ. of Texas at Austin*

We present the Exposure Time Calculator of IGRINS. The noises of IGRINS can be calculated from the combination of Telluric background emission and absorptions, the emission and transmission of the telescope and instrument optics, and the dark noise and the read noise of the infrared arrays. For the atmospheric transmissions, we apply the simulated spectra depending on the Precipitable Water Vapor (PWV) values. The user needs to input the expected target magnitude, the weather conditions, and the desired exposure time. The output would be the expected signal-to-noise for each spectral resolution element.

[IGRINS-04] Determining the stellar parameters of solar-like stars using synthetic spectra

Wonseok Kang¹, Sang-Gak Lee²

¹*Kyung Hee University,* ²*Seoul National University*

IGRINS (Immersion GRating INfrared Spectrometer) will provide the spectra with high-resolution and an instantaneous spectral coverage of H and K band in NIR region. Therefore, it is expected that the wide coverage of wavelength would make a production of an extensive NIR high-resolution spectra of standard stars as a prior program of IGRINS. As a counter part of these NIR spectra, we have planned to obtain the high-resolution spectra of those standard stars in optical band. These optical high-resolution spectra would give us an opportunity to produce the library of high-resolution stellar spectra covering from optical to NIR band, and to confirm the method to determine the stellar parameters and chemical abundances from the NIR high-resolution spectra.

Before using the NIR high-resolution spectra, we have tested the method to determine the stellar parameters by comparing between the observed spectra and the synthetic spectra in optical band. In order to make the synthetic spectra, we have used the Kurucz ATLAS9 model grids and the SYNTH code described by Fiorella Castelli (<http://wwwuser.oat.ts.astro.it/castelli/>). For the cross-check against the parameters that would be derived from the NIR spectra, the stellar parameters such as effective temperature and surface gravity were determined using the optical spectra of the solar-like stars, as preliminary results.