
A Feasibility Study for Near-Infrared Spectroscopy with GeMS

Aurea Garcia-Rissmann^{*1}, Rodrigo Carrasco¹, Ruben Diaz¹, Joan Font¹, Vincent Garrel¹, and Manuel Gomez-Jimenez¹

¹Gemini Observatory/NSF's NOIRLab – Chile

Abstract

As part of the plan for AO-related upgrades envisioned for the Gemini Observatory a feasibility study has been started aiming to integrate GeMS with Flamingos-2 operations. This latter, hereafter referred to as F2, is a wide-field near-infrared imager, long-slit and multi-object spectrograph with a percentage of Gemini South instruments demand currently ranging around 15-20%. The integration with GeMS can open the possibility for an AO-corrected beam to feed spectroscopic modes, thus significantly increasing the sensitivity as well as the spectral and spatial resolutions of F2 observations covering J, H and K bands. First steps towards this goal include a characterization of the current GeMS performance with the Gemini South Adaptive Optics Imager (GSAOI) for measuring the centroid stability under nodding & sky offsets and EE/FWHM uniformity across the FoV. A discussion of the main aspects and challenges to be addressed in this feasibility study will be presented, such as the need to integrate new calibration sources in the AO path for spectroscopy, a revisit of the non-common path aberrations calibration strategy, thermal background mitigation, among others. Results from preliminary GeMS+F2 operational settings and on-sky tests will also be presented.

Keywords: MCAO, instrumentation, near, infrared, spectroscopy

^{*}Speaker