

IGRINS Newsletter -- 2017 Trimester 3

Dear IGRINS community:

We have two major proposal opportunities to share with you for IGRINS science at the Discovery Channel Telescope (DCT) and Gemini-South.

In September 2017 IGRINS will be resuming science operations at the DCT for a 5-month visit. Requests will be accepted at any time between now and January 15th, 2018 and can be submitted with this form <https://goo.gl/forms/BvfrGXzaETHtFbhs1>.

At the end of January 2018 IGRINS will return to UT Austin for maintenance and adjustments, then travel to Gemini Observatory, where it will be available for community time from April-July. The proposal deadline for IGRINS at Gemini will be around September 30, 2017 and more information will be available in the Call for Proposals when it comes available. For planning to use IGRINS at Gemini, please visit our website: <https://sites.google.com/site/igrinsatgemini/>

We are also adding two new postdocs to the IGRINS team to help make new facility visits and IGRINS science a greater success.

- Dr. Ricardo Lopez-Valdivia will be coming from the National Institute of Astrophysics, Optics, and Electronics (INAOE) in Puebla, Mexico and joining us at UT Austin.
- Dr. Heeyoung Oh will be the new IGRINS postdoc for KASI, will be based in Austin Texas, and has already successfully published IGRINS Team observations.

Visits to the DCT and Gemini-South give the IGRINS community an opportunity to expand collaboration and reach out to the global community of astronomers. We hope that you take this opportunity to grow your science collaborations.

Please email us with your questions at igrins.contact@gmail.com .

With best wishes,
Dan Jaffe and the IGRINS Team

1. No Newsletter was sent in Trimester 2 of 2017.

2. Current IGRINS Status and Performance

IGRINS has been at McDonald Observatory since March 2017 and will soon be headed back to the Discovery Channel Telescope (DCT). We no longer employ the instrument calibration unit and now exclusively use dome flats and sky-lines for wavelength calibrations. We have not noted any changes in the instrument performance and small updates to observing software have been made. Plans for preventive maintenance and on-site spares should ensure that the system continues to perform.

3. McDonald Observatory Update

In the 6 months of 2017 that IGRINS was at McDonald it was scheduled for 60 nights. While at McDonald we installed a facility cooling circuit that includes a glycol chiller on the 1st floor, a helium compressor on the 4th floor, and all associated hoses between these units and the telescope. These will remain at McDonald until IGRINS returns and their permanence reduces the equipment to be transported between facilities. On August 23rd IGRINS will leave McDonald for a 5-month visit to the DCT.

4. IGRINS Performance at the DCT

Typical observations with IGRINS on DCT are ABBA nod sets with 300 second exposures. For a $K=10$ target, this provides a peak signal-to-noise of ~ 150 . The bright limit for IGRINS on DCT is $K=4$, and typical targets should be fainter than $K=8$ to keep exposure times greater than pointing and acquisition overheads. The faint limit for IGRINS is $K\sim 13$, depending on the observing conditions and the desired signal, with 2 hours of exposure time providing signal-to-noise ~ 90 at this limit. The IGRINS slit on the DCT is ~ 0.63 arcseconds wide and ~ 9.42 arcseconds long. Blind offsets to a target from a star on the IGRINS slit-viewing camera are feasible, but require patience and planning. Signal-to-Noise estimates for the DCT are located here:

<https://wikis.utexas.edu/display/IGRINS/SNR+Estimates+and+Guidelines>

In this second visit to the DCT the instrument mount will be replaced so that the instrument focus is at the center of the telescope focal range. This will allow IGRINS observers to use the facility guider. Since this will not be tested until the end of August 2017, IGRINS users should anticipate guiding with the IGRINS slit-viewing camera.

5. IGRINS at DCT Queue Requests – September 2017 to January 2018

We anticipate ~ 15 queue nights for UT and KASI astronomers before IGRINS leaves the DCT at the end of January. Science requests by UT and KASI astronomers are welcome at this link, <https://goo.gl/forms/BvfrGXzaETHtFbhs1>

The KASI Legacy and UT YSO guaranteed programs for IGRINS will have a similar number of nights (~ 15) and will not request queue time. We continue to encourage collaboration with these programs rather than requesting separate observations of the same sources. Please contact these groups if you would like to collaborate.

6. IGRINS at Gemini South – April through July 2018

The IGRINS deployment to Gemini-South is on schedule for the 2018A semester. Community time will be supported by Gemini observatory and an NSF grant (AST-1702267, P.I. Mace). All IGRINS time will be block scheduled and queue observed by the IGRINS team. More information can be found in the Gemini Call for Proposals, which should be released September 1, 2017. Proposals will be due around September 30th, 2017. Information for planning your IGRINS science can be found on the webpage dedicated to this project: <https://sites.google.com/site/igrinsatgemini/>

Changes to IGRINS for Gemini include a new four-lens input optics assembly and mounts to the Instrument Support Structure. On Gemini, IGRINS will have a 5" x 0.34" slit and we will primarily use the facility guider. The bright limit will be K=4mag and the faint limit is K=15mag (SNR~40 in 8 hours). Please email igrins.contact@gmail.com if you have questions not answered on the webpages.

7. IGRINS Pipeline Package Versions

An updated version of the pipeline (v2.2.0) is now available (<https://github.com/igrins/plp>). This version is supposed to handle all the IGRINS data (McDonald and DCT). Changes and updates are described in <https://github.com/igrins/plp/releases>. This version can be cited using the DOI at this site: <https://zenodo.org/record/845059#.WZd-XK2ZPUo>

8. IGRINS Publications

The full list of IGRINS publications can be viewed here: <https://sites.google.com/site/igrinsatgemini/science-with-igrins>

ADS Listed IGRINS Science Papers:

Afşar, Melike, et al., **The Chemical Compositions of Very Metal-Poor Stars HD 122563 and HD 140283; A View From the Infrared**, 2016, ApJ, 819, 103

Bowler, Brendan, et al., **Planets Around Low-Mass Stars (PALMS). VI. Discovery of a Remarkably Red Planetary-Mass Companion to the AB Dor Moving Group Candidate 2MASS J22362452+4751425**, 2017, AJ, 153, 18

Gaidos, Eric, et al., **Zodiacal Exoplanets in Time (ZEIT) II. A "Super-Earth" Orbiting a Young K Dwarf in the Pleiades Neighborhood**, 2017, MNRAS, 464, 850

Galazutdinov, Gazanir, et al., **Infrared diffuse interstellar bands**, 2017, MNRAS, 467, 3099

Gullikson, Kevin, et al., **The Close Companion Mass-ratio Distribution of Intermediate-mass Stars**, 2016, AJ, 152, 40

Gullikson, Kevin, et al., **Direct Spectroscopic Detection: An Efficient Method to Detect and Characterize Binary Systems**, 2016, *AJ*, 151, 3

Gully-Santiago, Michael, et al., **Placing the Spotted T Tauri Star LkCa 4 on an HR Diagram**, 2017, *ApJ*, 836, 200

Han, Eunhyu, et al., **Magnetic Inflation and Stellar Mass I: Revised Parameters for the Component Stars of the Kepler Low-mass Eclipsing Binary T-Cyg1-12664**, 2017, arXiv: 170707001H

Herczeg, Gregory, et al., **The Eruption of the Candidate Young Star ASASSN-15QI**, 2016, *ApJ*, 831, 133

Johns-Krull, Christopher, et al., **A Candidate Young Massive Planet in Orbit around the Classical T Tauri Star CI Tau**, 2016, *ApJ*, 826, 206

Kaplan, Kyle, et al., **Excitation of Molecular Hydrogen in the Orion Bar Photodissociation Region from a Deep Near-infrared IGRINS Spectrum**, 2017, *ApJ*, 838, 152

Lacy, John, et al., **H₂, CO, and Dust Absorption through Cold Molecular Clouds**, 2017, *ApJ*, 838, 66

Le, Huynh Anh, et al., **Fluorescent H₂ Emission Lines from the Reflection Nebula NGC 7023 Observed with IGRINS**, 2017, *ApJ*, 841, 13

Lee, Jeong-Eun, et al., **High Resolution Optical and NIR Spectra of HBC 722**, 2015, *ApJ*, 807, 84

Lee, Seokho, et al., **IGRINS Spectroscopy of Class I sources: IRAS 03445+3243 and IRAS 04239+2436**, 2016, *ApJ*, 826, 179

Lyo, Aran, et al., **Inner Warm Disk of ESO H α 279a Revealed by NA I and CO Overtone Emission Lines**, 2017, *ApJ*, 844, 4

Mann, Andrew, et al., **Zodiacal Exoplanets in Time (ZEIT) IV: seven transiting planets in the Praesepe cluster**, 2017, *AJ*, 153, 64

Mann, Andrew, et al., **Zodiacal Exoplanets in Time (ZEIT) III: A Neptune-sized planet orbiting a pre-main-sequence star in the Upper Scorpius OB Association**, 2016, *AJ*, 152, 61

Mann, Andrew, et al., **Zodiacal Exoplanets In Time (ZEIT) I: A Neptune-sized planet orbiting an M4.5 dwarf in the Hyades Star Cluster**, 2016, *ApJ*, 818, 46

Oh, Heeyoung, et al., **Three-dimensional Shock Structure of Orion KL Outflow with IGRINS**, 2016, *ApJ*, 833, 275

Oh, Heeyoung, et al., **IGRINS Near-IR High-Resolution Spectroscopy of Multiple Jets around LkH α 234**, 2016, ApJ, 817, 148

Rappaport, Saul, et al., **EPIC 220204960: A Quadruple Star System Containing Two Strongly Interacting Eclipsing Binaries**, 2017, MNRAS, 467, 2160

Robinson, Edward, et al., **The Spectrum of SS 433 in the H and K Bands**, 2017, ApJ, 841, 79

Sterling, Nicholas, et al., **Discovery of Rubidium, Cadmium, and Germanium Emission Lines in the Near-Infrared Spectra of Planetary Nebulae**, 2016, ApJL, 819, L9