

## Near-Infrared High-Throughput Spectrograph (NIHTS)

## Instruments

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**Facility**  
**Instruments:**

## Large Monolithic Imager (LMI)

DeVeny Optical Spectrograph

NIR  
Spectrograph  
(NIHTS)

**Visitor / PI**  
**Instruments:**

High-Res  
Spectrograph  
(EXPRES)

Speckle Imager  
(QWSSI)

High Speed  
Imager (POETS)

NIR  
Spectrograph  
(RIMAS)

**User Manuals:**

LMI Manual

DeVenv Manual

NIHTS Manual

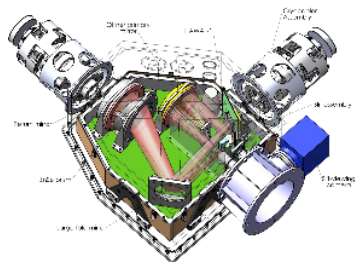
**LDT Facility Instrument – Available Full-Time, Remote Available**

**Mounting Port:** Instrument Cube – Port D (small)

Manual: [NIHTS User Manual v1.7 \(26 April 2021\)](#)

**Additional Information:** Overview of NIHTS (2018 Proc. SPIE 10702, 107023E), NIHTS Commissioning Paper (Gustafsson, A. et al. 2021, PASP, 133, 035001)

**Instrument Scientist:** Nick Moskovitz (nmosko at lowell dot edu)



NIHTS internal layout (NIHTS Manual, fig. 25).

The Near-Infrared High-Throughput Spectrograph (NIHTS, pronounced "nights") is a low-resolution (R~200) near-infrared prism spectrograph, covering 0.86-2.4 microns in a single setup at a resolution of ~100 to 200. NIHTS contains no moving parts and employs a single slit mask that offers 7 different width slits (4.03, 1.34, 0.81, 0.27, 0.54, 1.07 and 1.61 arcseconds), each approximately 10 arcseconds in length. The instrument is fed by a dichroic fold flat on a linear translation stage in the instrument cube, which allows simultaneous LMI imaging and NIHTS spectroscopy.

Users scheduled with NIHTS are encouraged to contact Nick Moskovitz at least two weeks ahead of their run to provide information about the planned observations. Afternoon and night time support for the instrument will be available for first-time users. A data reduction pipeline for NIHTS developed by M. Cushing (U. Toledo) and based on the IDL Spextool package is available.

**NB: (2024Mar25)** LDT staff are in the process of adding NIHTS to the Pypelt spectroscopic data reduction pipeline. This will be an alternate data reduction pathway to the existing SpeXTool pipeline in IDL, and will produce reduced data in the same format as for DeVeney.

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**Instrument Quick Facts:**

Detector: Rockwell Hawaii-1 array: 1024 x 1024 pixels

Slit Length: 12" (per slit segment)

Pixel Scale: 0.13"/pixel (spatial direction)

Gain: 24 e<sup>-</sup>/ADU

Read Noise: 100 e<sup>-</sup>

Normal Operating Temperature: 75 K

Readout Time: 0.001504 sec (Row Time)

Minimum Exposure Time: 0.77 sec

Slit Widths: 4.03", 1.61", 1.34", 1.07", 0.81", 0.54", 0.26"

Slit Viewing Camera:

Model: Xenics XEVA IR camera

Pixel Scale: 0.326"/pixel

Image Size: 320 x 256 pixels

Field of View: 60" x 90"