

# LDT Instrumentation

		Instruments		
		<a href="#">Instrumentation Main Page</a>		
		<b><u>Facility Instruments:</u></b>		
Quick Links	<a href="#">LDT Observer Information Home</a>		<a href="#">Large Monolithic Imager (LMI)</a>	
	<a href="#">Instrumentation</a>	<a href="#">Facility</a>	<a href="#">DeVeny Optical Spectrograph</a>	<a href="#">At the Telescope</a>
	<a href="#">Applying for Observing Time</a>	<a href="#">LDT Science Schedule</a>	<a href="#">NIR Spectrograph (NIHTS)</a>	<a href="#">Observing Planning</a>
	<a href="#">Observing Run Planning</a>	<a href="#">LDT Staff</a>		<a href="#">Applying for Observing Time</a>
	<a href="#">At the Telescope (Printable Logsheets)</a>	<a href="#">Telescope</a>	<b><u>Visitor / PI Instruments:</u></b>	<a href="#">Observing Quick Links</a>
	<a href="#">Target of Opportunity (ToO) Policies</a>	<a href="#">Site Information</a>		<a href="#">Target of Opportunity (ToO) Policies</a>
	<a href="#">After Your Observing Run</a>	<a href="#">Weather</a>		<a href="#">Remote Observing</a>
	<a href="#">First-Time Users</a>	<a href="#">Acknowledging LDT</a>		<a href="#">Remote Observing</a>
		<a href="#">Selected Technical Publications</a>		<a href="#">LDT Startup Procedures</a>
				<a href="#">Closure Conditions</a>
	<a href="#">Logistics</a>			<a href="#">Night Feedback Form</a>
<a href="#">LDT Important Notes</a>				<a href="#">End of Night Tasks</a>
			<a href="#">NIR Spectrograph (RIMAS)</a>	
		<b><u>User Manuals:</u></b>		
		<a href="#">LMI Manual</a>		
		<a href="#">DeVeny Manual</a>		
		<a href="#">NIHTS Manual</a>		

## 2024A Instrument Availability and Configuration

The instrument cube on the Cassegrain focus is currently the only point for mounting instruments on LDT. The instrument cube supports up to 5 instruments at one time; one on the through port, two on the larger side ports (A & C), and two on smaller side ports (B & D). The simultaneous mounting of instruments supports fast (~5 minutes) changeover between instruments and allows for multiple instruments to be used in a single night (or simultaneously, as in the case of NIHTS & LMI).

### Facility Instruments:

[Large Monolithic Imager \(LMI\)](#) – Optical imager - Available Full-Time, Remote Available

[DeVeny Optical Spectrograph](#) – Low and medium resolution optical spectrograph - Available Full-Time, Remote Available

[Near-Infrared High-Throughput Spectrograph \(NIHTS\)](#) – Low resolution near IR spectrograph (0.9 to 2.4microns) - Available Full-Time, Remote Available

### Visitor / PI Instruments:

[EXPRES](#) – Very high resolution optical spectrograph - Available Full-Time, Remote Available; Contact D. Fischer if you want to use it.

[POETS](#) – High speed optical imager - Contact S. Levine.

[QWSSI](#) – Multi-channel speckle imager - Available, typically for a few block scheduled runs per semester, depending upon user demand.

[RIMAS](#) – Near IR imager and spectrograph - Under Development, Scheduled to arrive at LDT in 2024.

## **Other:**

[IGRINS](#) – Visited LDT three times between 2016 and 2019. Now in use at Gemini-S.

[Future Instruments](#) – Information for proposers of future instrumentation for LDT

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## **Instrument Cube Configuration:**

### **2024A (Current Semester):**

For January through June:

- **Through port:** LMI
- **A (large port):** QWSSI (*Jan-Feb*), POETS (*Mar-Jun*)
- **B (small port):** EXPRES
- **C (large port):** DeVený
- **D (small port):** NIHTS

### **2024B (Next Semester):**

For July through December:

- **Through port:** LMI
- **A (large port):** QWSSI (TBD), POETS (TBD), or RIMAS (TBD), or Open
- **B (small port):** EXPRES
- **C (large port):** DeVený
- **D (small port):** NIHTS

## **Past Instrument Cube Configurations**

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## **Status Notes**

As of 2017 the instrument cube on the Cassegrain focus is the only location for mounting instruments on LDT. The instrument cube supports up to 5 instruments at one time; one on the through port, two on the larger side ports, and two on smaller side ports. No two ports are exactly identical (e.g. the allowed instrument volumes are slightly different between the two larger ports). Some instruments will fit on either similar port, while other instruments may be restricted to a single port. Each side port is fed by its own dedicated fold mirror (or dichroic). The cube provides two guider/wavefront-sensor cameras that can be positioned around the edges of the field of view.

The DeVený spectrograph data reduction is now integrated into the [Pypelt spectral reduction pipeline](#).

The speckle imager QWSSI will be available during during 2024A.

RIMAS is expected to arrive and to start on-sky commissioning and check out in 2024B. It will not be available for general use in 2024B.

EXPRES started commissioning the Front End Module of the spectrograph during 2017Q3, and of the full spectrograph during 2018A, continuing into 18B. EXPRES continued in mixed commissioning and science modes under a shared-risk mode during 2019A and became available for general use in 2020A. Please contact the EXPRES PI (Debra Fischer) for instrument status and information if you are interested in using EXPRES (see details below under EXPRES).

NIHTS (re-)commissioning started in late August 2017 and continued through early 2018. As of mid-2018A, the instrument has been available for use (see details below under NIHTS). Minor details are still being cleaned up. A data reduction pipeline for NIHTS was developed by M. Cushing (U. Toledo), based on the IDL Spextool package.

The top element of the corrector for the straight through port (where LMI is mounted) was replaced in July 2017.