MicOS (Fig. 3) also has the flexibility to accommodate different user-selectable excitation laser wavelengths for III-V material excitation, and includes vision so that the user can readily see excitation position and areas of interest on the sample (Fig. 3).

In many such measurements, important electronic structure information can only be revealed at low temperatures. Therefore the PL measurement system also must be compatible with a cryostat. Fig. 1 shows a typical configuration of a HORIBA MicOS measurement system, and Fig. 2, the resultant PL spectra. Our MicOS (Fig. 3) also has the flexibility to accommodate different user-selectable excitation laser wavelengths for III-V material excitation, and includes vision so that the user can readily see excitation position and areas of interest on the sample (Fig. 3).

Fig. 1. Typical low-temperature, direct-coupled micro-PL setup. Direct coupling of the microscope’s front end increases throughput to the spectrometer (for low-light samples). System also has flexibility to measure sample via the side window of an upright cryostat or in a down-looking configuration.

Fig. 2. GaInN PL spectrum taken at 10 K after 405 nm laser-excitation at different excitation power-levels.

Fig. 3 (left) Down-looking version of HORIBA MicOS with mapping stage. (Right) Representative image of a patterned sample showing laser excitation on a region of interest.

References
2. Proprietary—semiconductor manufacturer.
### Specifications*

<table>
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<tr>
<th>Spectrometers</th>
<th>iHR320</th>
<th>iHR550</th>
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<tr>
<td>Spectral range</td>
<td>200 nm to 1600 nm</td>
<td></td>
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<tr>
<td>Spectral resolution</td>
<td>0.18 nm</td>
<td>0.1 nm</td>
</tr>
<tr>
<td>Detector Type</td>
<td>CCD 1024 × 256 OE³</td>
<td>IGA 512 × 25</td>
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<tr>
<td>Range</td>
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<td>800–1600 nm</td>
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<tr>
<td>Excitation laser</td>
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<td>Microscope Magnification</td>
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<td>Objective Spot size</td>
<td>100 µm</td>
<td>&lt;20 µm</td>
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<tr>
<td>Sample stage</td>
<td>xyz (manual or motorized)</td>
<td></td>
</tr>
</tbody>
</table>

1. Depends on choice of objective, filters, and detectors.
2. For 1200 gr/mm grating and open-electrode CCD
3. BIUV, BIVS, and BIDD formats available for specific quantum-efficiency requirements.
4. Needs two detectors to cover entire range.
5. Other options are available upon request.

*Specifications are subject to change without notice.

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**Spectrometers**
- **Spectral range**: 200 nm to 1600 nm
- **Spectral resolution**: 0.18 nm
- **Detector Type**: CCD 1024 × 256 OE³
- **Range**: 200–1050 nm
- **Excitation laser**: 532 nm
- **Microscope Magnification**: 10×
- **Objective Spot size**: 100 µm
- **Sample stage**: xyz (manual or motorized)

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**Lasers**
- 532 nm
- 633 nm
- 785 nm
- Custom

**Gratings**
- Grating 1
- Grating 2
- Grating 3

**Detectors**
- Synapse CCD (250–1050 nm)
- IGA array (800–1600 nm)
- Syncerity CCD (affordability)
- Single-channel detector

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**Side & down objectives**
- 10×
- 20×
- 50×
- Custom

**Optional mapping**
- Mapping stage
- Focusing stage
- Mounting platform

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**Contact Information**
- info.sci@horiba.com
- www.microspectroscopy.com

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