HORIBA Scientific

Photoluminescence Spectrophotometer

Photoluminor-D

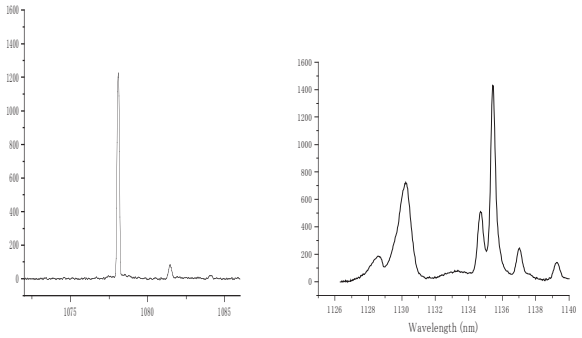
HORIBA now provides a Photoluminor-D which can quantify the impurity contents in mono crystalline silicon. It is widely used for the research and development and quality control at product line.

Applications

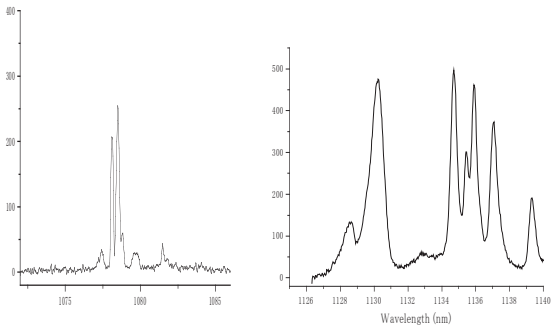
Silicon crystals: The silicon crystal is widely used semiconductor . The photoluminescence form silicon has been studied for along time in order to apply for quality control. The quantification impurity analysis in silicon enables you to analyze B, P, Al and As impurities in part-per trillion (ppt) range.
" Test Method for Photoluminescence Analysis of Single Crystal Silicon for III-V Impurities" is now approved as SEMI MF 1389-704.

Purpose

Photoluminor-D identifies and quantify the dopant impurities from mono crystalline silicon by photoluminescence analysis.



Photoluminescence spectrum P and B doped



Photoluminescence spectrum P、B and Al doped

Features

High Throughput

60 seconds/sample in a standard mode. High sensitivity detector and high performance monochromator make high throughput measurement possible.

Easy positioning

The TV camera is used for sample positioning. Sample positioning can be done easily and safely.

High extendibility

Additional detector, additional sample chamber can be attached. It is possible to meet all needs,

Dopant and sensitivity

Photoluminescence measurement detects boron, phosphorus, arsenic, and aluminum as inutilities in electronic grade mono crystalline silicon.
This method can be used for samples that have dopant densities between $1x10^{11}$ atoms/cm^3 and approximately $5x10^{15}$ atoms/cm^3.

Software

The Amami software was developed for quantitative analysis of impurity in silicon. You can analyze by an easy operation.

Compound semiconductors

Photoluminescence method is quite useful to evaluate composition and quality of compound semiconductors. For the instance, the PL measurement of epitaxial layers for LED's wafer and laser diodes have been routinely used. PL maps are versatile for quality control. The gas flow by the MOCVD method often gives the epitaxial wafers inhomogeneity of composition. In this case peak-shift PL maps can evaluate the distribution of composition..
We continue improving and developing more for the leading technology.
On your request, we could supply also other kinds of PL for your many purpose.

For examples:

For the mapping measurement by adding the microscope and XY stage at the entrance and CCD at the exit.
For the super high resolution measurement by adding CCD.
For the exclusive use of the compound semiconductor.

Other application

GaN/AlGaN multi quantum well structure GaN, InGaN

Cryostat

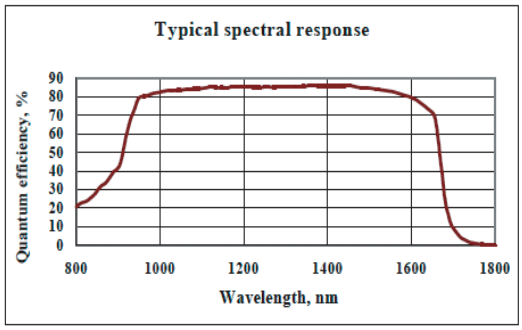
We offer the glass and a metal cryostat. Maximum 36 samples can be installed. The sample is cooled with liquid helium.

Detector

Symphony IGA

Symphony IGA is the ideal choice for demanding, low light level measurements in the near infrared spectral region. With a 1024x1 pixel format and small pixel size provides exceptionally high resolution.

Highest sensitivity in NIR range
Ultra low noise (LN2 cooling)
Array detector 25micron/pixel
500micron pixel height
1024 pixel
Wavelength Range 800nm to 1600nm



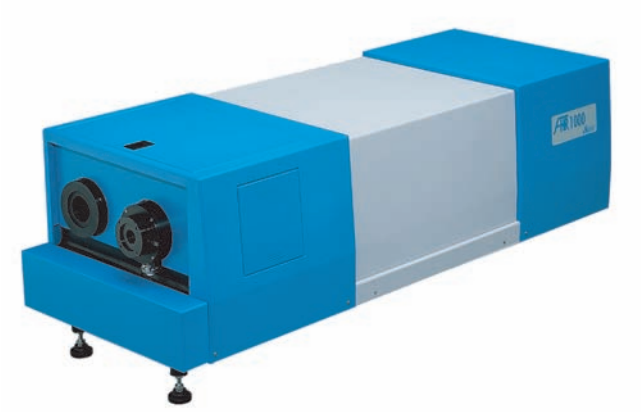
Typical spectral response for IGA-1024 x 1 detector (25 °C)

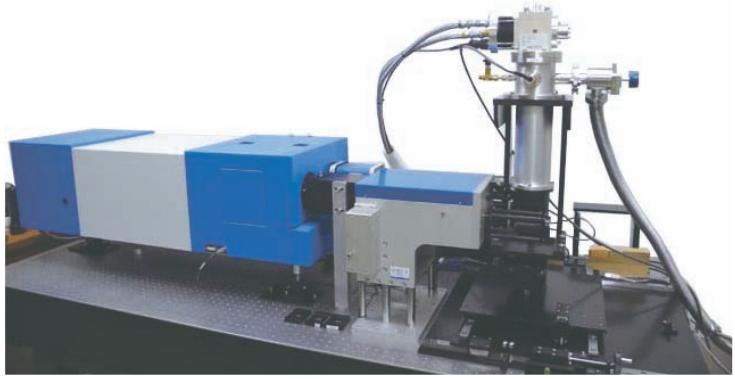
Monochromator

FHR1000 Spectrometer

The Ultimate performance Spectrometer
FHR1000 spectrometer offer a unique combination of drive speed, precision and high resolution. The direct grating drive features a grating speed of greater than 300nm/second, offering users significantly reduce experiment times.

High Speed (300nm/Sec) , High accuracy, High repeatability
Focal length: 1000mm
Aperture: f/9.0
Scanning Range: 0～1500nm
Grating: 110×110mm
Wavelength Accuracy: ±0.03nm
Wavelength Repeatability: ±0.015nm





ISO9001 JQA-0298 ISO14001 JQA-E-90039 IMS HORIBA is operating Integrated Management System OHSAS18001 JQA-OH0068 JQA-MD0010 ISO13485

http://www.horiba.com e-mail: info@horiba.co.jp

● **HORIBA, Ltd.**
Head Office
Miyanohigashi, Kisshoin
Minami-ku, Kyoto, Japan
Phone: 81 (75) 313-8123
Fax: 81 (75) 321-5725