

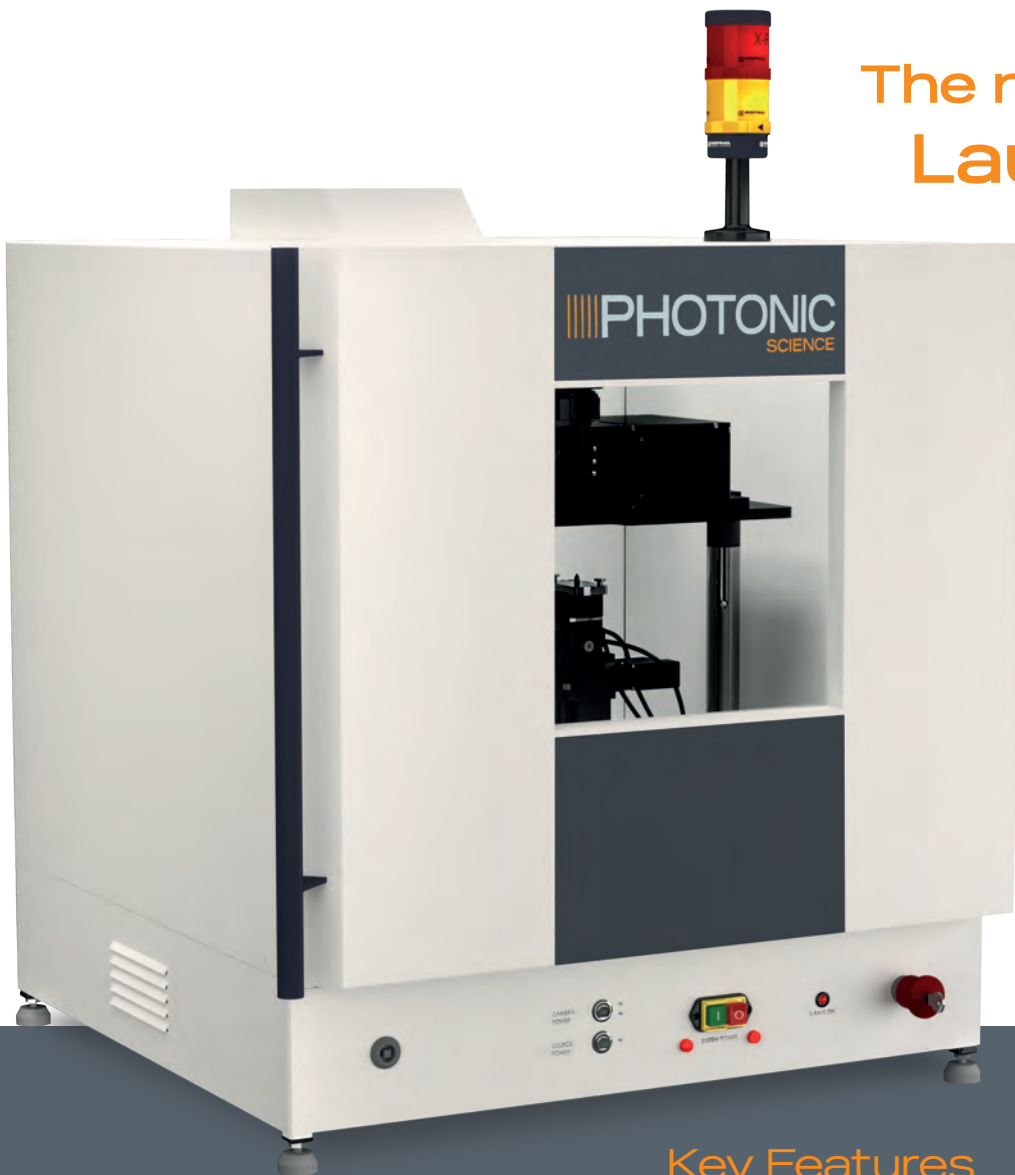


Single Crystal Orientation

Compact and motorized crystal diffraction
system for accurate and real-time orientation

precisionxray.com

The next generation Laue System



A high-resolution Crystal Orientation System is the ideal tool to capture and analyze the Laue diffraction pattern from a wide range of crystalline materials.

Precision X-Ray brings you the **Laue System by Photonic Science** - market leading, compact, motorized system, with flexible configurations.

Large Active Area
155 mm x 105 mm

High Resolution
2,570 x 1,710 pixels

Input Pixel Size
61 μm x 61 μm

Spot Size
450 μm standard
250 μm fine focus

Energy Range
5 to 29 keV

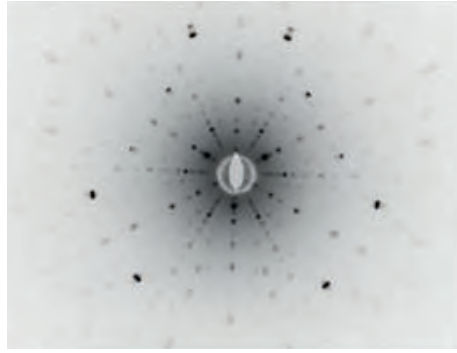
Source
50W

Key Features

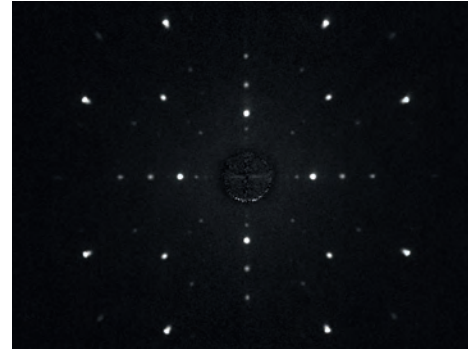
- Vertical, Horizontal, and Grain Map configurations
- Plug-n-Play compact cabinet system
no customized bench or additional services required
- Fully automated and motorized XYZ Stages and Goniometer
with manual options available
- CCD back reflection, high-resolution, high-sensitivity
x-ray detector
- High-throughput sample screening options
- Proprietary focusing optics
giving a small collimated beam size
- Fast and precise alignment of small crystals
with on-board high-resolution viewing camera
- Distance measurement tool
for precise and reproducible sample positioning
- Dedicated Laue Software
for full control, data acquisition, processing and analysis



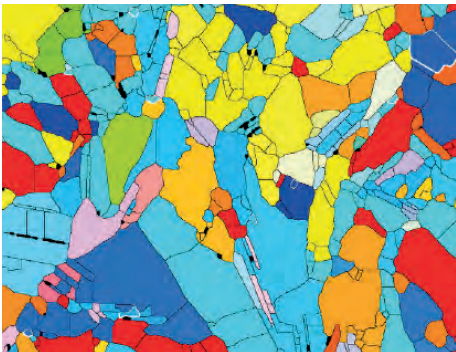
Sapphire C-axis aligned



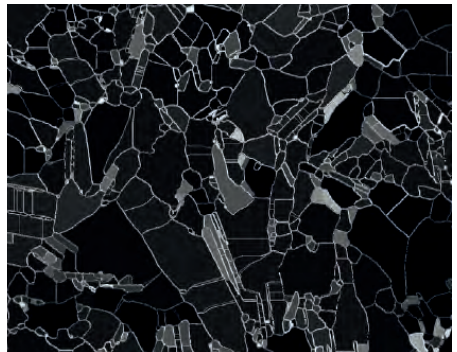
SiC Hex aligned



Silicon alignment to better than 0.1 degree accuracy



Two dimensional orientation map



Poly crystalline Si Wafer



Extraction of contours and centroids for x-ray analysis

Applications

Crystal Cutting

Real Time Crystal Orientation

Crystal Characterization

Crystal Growth

Photovoltaic Inspection

Gem Inspection

Two-Dimensional orientation mapping of polycrystalline silicon wafers

Semiconductor Crystals

Wafer Inspection

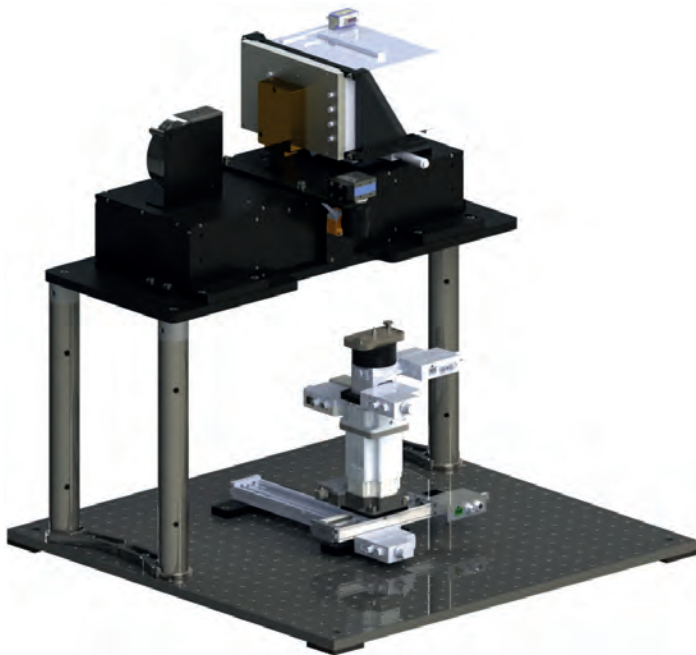
“ The Laue is our system of choice as we have found it very dependable.

Beyond the accuracy and reliability, the major feature is the convenience and speed of the system... it runs off a normal wall plug and quickly boots up to check your crystals immediately.

It really is the best value that I have found on the market, with the complete kit delivered onsite with an installation video - you set it up and, in an hour or two, you are ready to go. ”

Gavin Hester, PhD

Assistant Professor, Dept. of Physics, Brock University



Above: Vertical system with fully motorized XYZ stage and goniometer

Vertical Laue System

The most flexible configuration, the Vertical Laue System uses a vertical beam path for high throughput scanning of multiple crystals in isolation, or multiple areas of interest.

Using gravity, samples do not need to be adhered to the platform, allowing for easier mounting and orienting of crystals.

With a 450 μm beam size both sub-millimetric range samples and larger components like turbine alloys are accommodated.

See below for the wide ranging benefits of a vertical system...

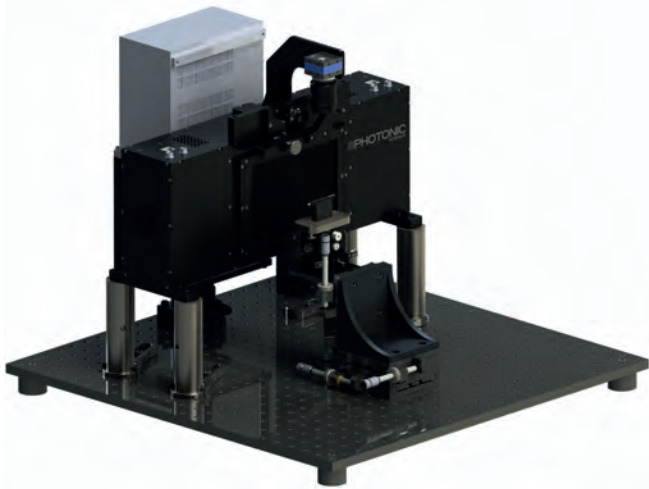
“ The Laue System has the most versatile configuration, and the backscatter geometry is the most intuitive for non-crystallographic experts.

It allows easy sample loading and inspection with a high-resolution camera and automatic transfer under the x-ray beam for automatic Laue pattern acquisition routines.

The motorized XYZ stage allows you to position samples down to 200 microns accuracy, and manual or motorized goniometers allow for flexibility for real-time sample orientation. ”

Vertical System Benefits

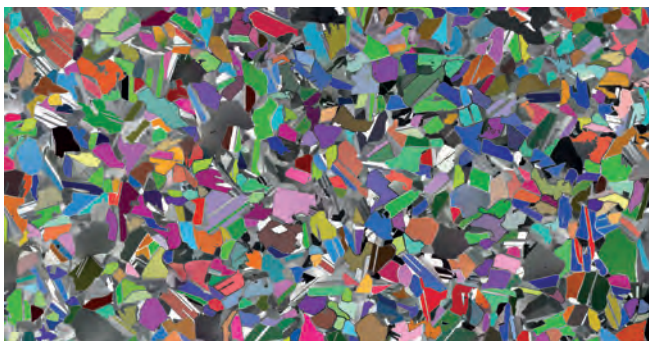
- ✓ A vertical beam path takes up less room in the cabinet, leaving more space for experiments
- ✓ Compatible with additional optics or inspection modalities
- ✓ Laser-guided distance sensor for more accurate and repeatable sample positioning
- ✓ Safer mounting of samples away from the detector
- ✓ More loading space makes sample setup easier and faster
- ✓ Allows motorized goniometers to operate at larger tilt and rotation degrees compared to horizontal systems
- ✓ Software supports automated macro routines



Horizontal Laue System

The Laue System is also available with a traditional horizontal geometry.

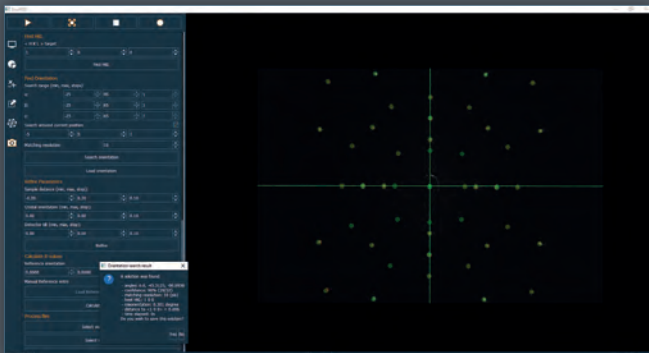
A horizontal beam system is well suited to orient the crystal for cutting or to quickly scan the crystal to identify reflections.



Grain Map System

Vertical system featuring a special camera, lens, illumination, and mapping software to measure the orientation of each grain.

Grain Map includes a fully motorized XYZ stage and goniometer as standard. It is ideal for grain mapping Silicon Wafers.



Alignment Software

Automatically detects diffraction spots and calculates spot position against reference crystal

Automatically calculates mis orientation against goniometer and crystallographic axis

Intuitive workflow for multiuser operation and non-expert crystallography users

Saves angular measurements in CSV format for Quality Assurance traceability

Built-in Macro interface for automating repetitive routines

Compatible with CFL data files

Remote access control for ongoing service support, minimizing downtime



LAUE / Brochure / Rev.03 / May2024

Whether a new or existing customer, Precision will be with you every step of the way



Service Packages

From single to multi-year warranties, we have a plan that fits your service and budget requirements.



Easy plug-n-play installation

Delivered pre-configured with an installation video that takes you step by step through the complete process.



Remote Support

The first line of support to diagnose and troubleshoot problems while keeping downtime to a minimum.



System Optimization

Helping you get the most out of your technology today and into the future.



Preventative Maintenance

Proactive care to keep systems running at their optimal level of performance.



Customer Training & Support

Our specialists ensure you get the results you are looking for.

