Laue-Camera GmbH
Dr. Andreas Erb

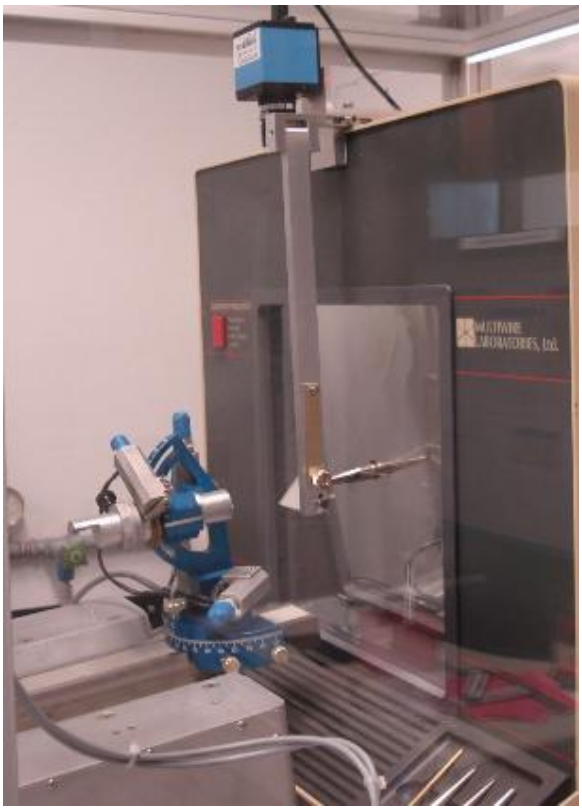
Bau von Röntgenanlagen zur Kristallorientierung, Beratung und Umrüstung für Röntgengeräte
Sonnenweg 4b , 85386 Eching/ Dietersheim, Germany
European sales and installation for Multiwire Laboratories Ltd., 95 Brown Rd., Ithaca, NY 14850 USA

Accessories for the Multiwire equipment to be ordered separately from us:

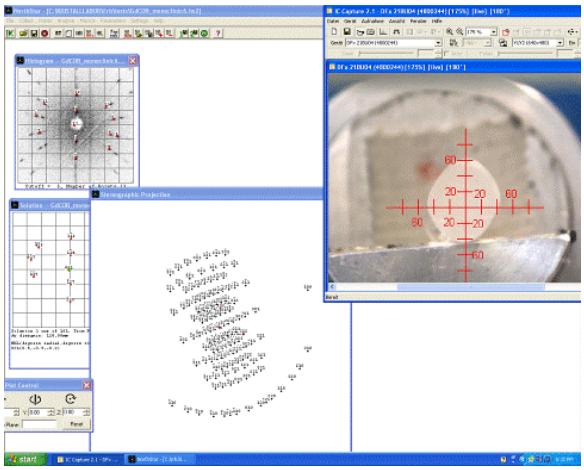
To benefit the outmost from your new Laue Equipment from **Multiwire Laboratories, Ltd**., Ithaca, NY 14850, USA (http://www.multiwire.com/) we developed several new accessories, which make the daily use even faster and more enjoyable.

Optical positioning system with retractable mirror:

Especially when working with small research samples – sometimes of questionable quality- it is of great help to have an optical control for the positioning of the small crystals in the beam. Also for ingots with multiple crystal grains and grain boundaries the exact knowledge of where the primary beam hits the sample is essential. Furthermore one can completely avoid working on the open x-ray beam for adjustment reasons, since positioning of the sample can be made using the camera system. This increases **radiation safety**, which is an important issue especially when students work on such equipment. Since you never have to work on the open x-ray beam the safety circuit can be modified to make the Laue camera a **full protection system**, where the use of dosimeters for the personal can be avoided.



Retractable USB-camera-mirror system for exact positioning of the sample in the beam



Picture of the USB-camera on the Multiwire computer display. Crosshairs for accurate positioning and finding of the location of grain boundaries.The crystal shown here is a monoclinic GdCOB crystal. Also shown are the solution and the stereographic projection.

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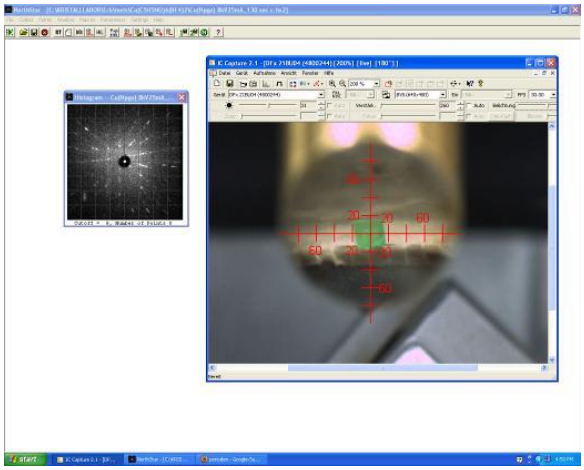
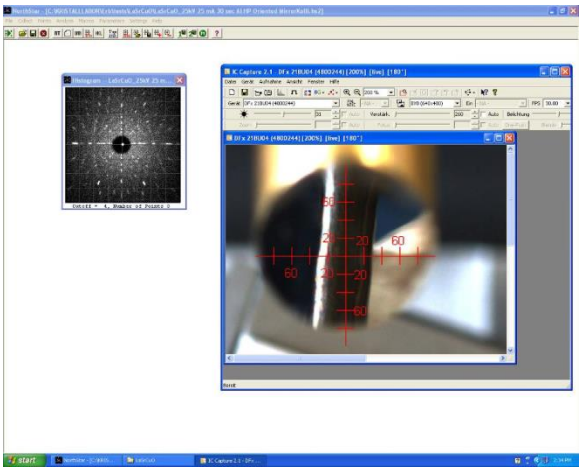
Mirror Collimator for the optical positioning system:

To further facilitate the use of the MWL equipment with research samples and samples with multiple grains we developed a collimator with an integrated mirror for the optical positioning system. The mirror is nearly completely transparent for the x-ray beam and reflective in the visible spectrum.

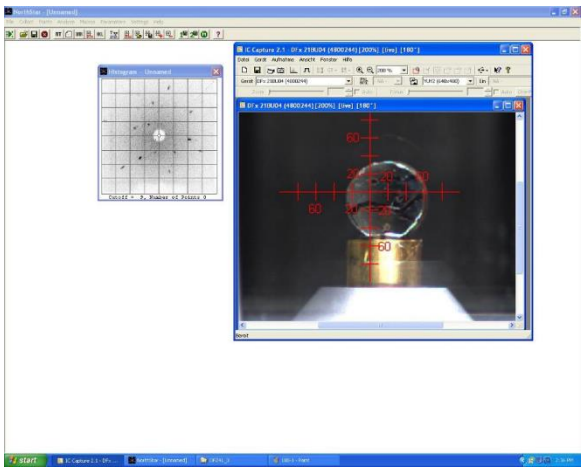
Collimator with mirror which is transparent for x-rays allows the real time imaging of both the Laue Pattern and the optical image simultaneously



Screenshot of an image using the mirror collimator. The small green Cu(C5H5NO)6(BF4)2 crystal is about 1 mm x 1 mm only. Cu(C5H5NO)6(BF4)2 is a material where we know that most of the competing systems fail to produce Laue pictures. Exposure time was 120 sec here



Screenshot of a 110-oriented La1.85Sr0.15CuO4 single crystal. Simultaneous imaging of Laue and optical image



Screenshot of a crystal with several grain boundaries. It is easy to detect them using the mirror collimator

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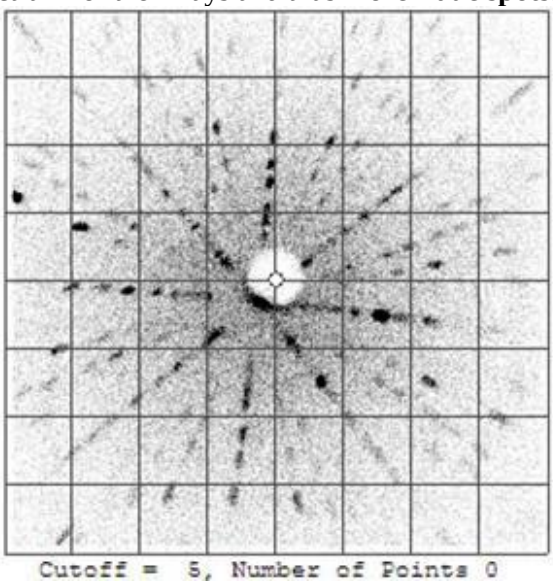
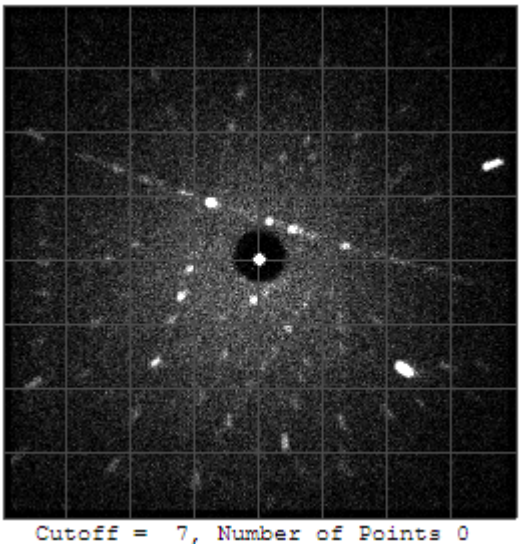
Fluorescence filters:

When working with highly **fluorescent samples** like Nickel based super alloys or with crystals containing considerable amounts of elements like Fe, Co, Mn or La, the use of a filter reducing the fluorescent backscattered radiation can be very helpful to obtain many Laue reflections. By using a filter one can also work at higher acceleration voltages to obtain a wider spectrum for the x-rays and thus **more Laue spots**.

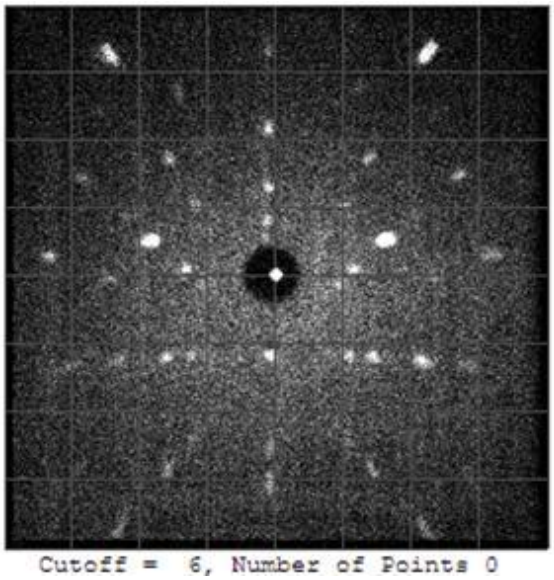
Fluorescence filter and mirror collimator on the MWL 110 detector



Pyrite FeS_2 single crystal measured with the fluorescence filter at 25 KV 25 mA 30 sec. One obtains lots of Laue reflections



Single crystal of La1.85Sr0.15CuO4 at arbitrary orientation using a fluorescence filter 25 kV 25 mA, 20 sec exposure



Nickel based super alloy at 25kV 30 sec

Just 2 more examples for the use of fluorescence filters:

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