radiation science, but also by working with the EU national synchrotrons.

MS34 P05

Reduction of strain in a internally cooled monochromator for synchrotron radiation P. Oberta[a], V. Áč[b], B. Lukaš[c], J. Hrdý[a] [a] *Institute of Physics, Academy of Sciences of the Czech Republic v.v.i., Czech Republic.*[b] *Department of Physics, Alexander Dubček University in Trenčín, Slovakia.*[c] *Polovodiče a.s., Czech Republic*. E-mail: oberta@fzu.cz

Keywords: monochromator, thermal deformations, internal cooling

More and more leading synchrotron facilities are aiming for heigher flux. Higher flux is connected with higher thermal distortions in monochromators used in these facilities. The goal of our x-ray optics group is to minimalize the deformations caused by the manufacturing of the monochromator and the head load due to absorbed radiation. These deformations are partly due to the strain caused by the cooling process of the solder. We have made some efforts to lower these deformations and the thermal bump and to bring the slope error around or less than 1 μrad. To achieve this result we studied several approaches like: proper etching of the microchannels (see Fig. 1), proper thickness of the Si layer above the microchannels, choosing the optimal solder, different geometry of the microchannels causing turbulent flow instead of laminar, the use of incline geometry in totally new designs of monochromators! All these steps should result in the reduction of the lattice deformation.

Fig. 1

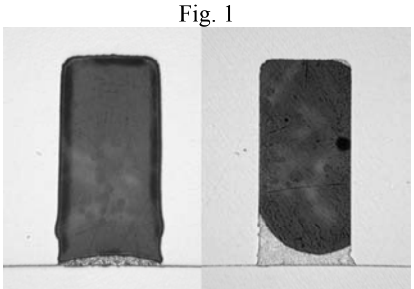
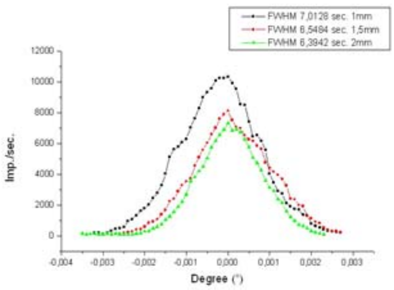


Fig. 2



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MS34 P06

Diamond Light Source MX Beamlines: An Update
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Keywords: Diamond, Synchrotron, Beamlines

The Diamond Light Source, a third generation synchrotron in the UK, is now operational and has had its first users collecting data. We report here a progress update.
Diamond is well set up to cater for the macromolecular crystallography (MX) community. There are three beamlines specifically for MX out of seven phase-one beamlines with several other MX beamlines planned for later phases of construction. The three beamlines are essentially designed to be the same although one beamline is set up such that pathogenic samples can be analysed safely. Automation played a strong role in the design criteria so all beamlines are equipped with Rigaku Actor sample-handling robots. Each beamline uses an ADSC Quantum 315R CCD detector, mounted on an A-frame assembly. An on-line viewing system allows users to see their samples as the X-rays will hit them. Each of the three beamlines will be tunable in the range 0.5 to 2.5Å, radiation being provided by in-vacuum undulators allowing MAD and SAD experiments to be carried out with ease. Each experimental beamline has its own 20 TB data storage to cope with the huge amount of data we expect to be produced. Control software has been developed to facilitate data collection and gives users a simple interface with which to carry out their experiments. Work is about to begin on the construction of the first side-station which will be a fixed-wavelength experimental station aimed at the high-throughput users who do not require tunable X-rays. The micro-focus beamline hutches have now been built and installation of services will begin shortly. 2007 will be an exciting time for MX work at Diamond with commissioning coming to an end and users beginning to use the facility routinely.