

Poster Presentation

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Withdrawn - Experimenting S-SAD on BM14-2 at the ESRF

H. Belrhali¹, A. Khadrouche¹, B. Manjasetty¹, T. Mairs³

¹EMBL Grenoble Outstation, Grenoble, France, ²Unit for Virus Host-Cell Interactions, Univ. Grenoble, France, ³ESRF, Grenoble, France

Bending Magnet beamline 14 (BM14) at the European Synchrotron Radiation Facility (ESRF, Grenoble, France) is dedicated to macromolecular crystallography (MX). This experimental station has been designed specifically to produce MX diffraction data using the methods of Single- or Multiple-wavelength Anomalous Diffraction (SAD or MAD) (www.bm14.eu). From 1994 to 2000, BM14 operated as an ESRF public beamline. Then from 2001 to 2009 the beamline was acquired and operated as an UK Medical Research Council Collaborative Research Group beamline. Since 2010, it is now back an ESRF beamline operated by a consortium between the ESRF, the EMBL Grenoble Outstation and the Indian Department of Biotechnology for the benefit of both the European and Indian MX communities. During 2011 and 2012, the beamline optics' hutch was fully upgraded (hence the new denomination BM14-2). As a consequence the upgrade produced a four-time increase in beam brilliance with the concomitant reduction in average exposure time (~5 s today versus 20 s for BM14), leading to a substantial gain in the beamline screening capacity and in scientific productivity. Moreover, in addition to the new optical elements, the new channel-cut crystal was equipped with a second crystal pusher to reject high-energy harmonics. This latter device turned to be crucial for sulphur-SAD experiment success rate as it is very efficient in "cleaning up" the spectral purity of the low energy beams. We will illustrate the benefit of rejecting harmonics in terms of data quality and phasing power, critical for S-SAD experiments. We will also explicit our multiple-kappa orientation approach to enhance multiplicity as well as to optimise scaling protocols, both also very important for the success rate of these very low anomalous signal experiments. Nota Bene: European users may apply for direct access to the beamline via the Biostruct-X European program (www.biostruct-x.eu). Users from India are encouraged to apply from <http://process.mbu.iisc.ernet.in/BM14/index.jsp>

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