



	<b>Experiment title:</b> Structure analysis of light-responsive and human disease related proteins	<b>Experiment number:</b> MX-539
<b>Beamline:</b> ID 29	<b>Date of experiment:</b> from: 05/07/07 to: 06/07 /07	<b>Date of report:</b> 15.02.08
<b>Shifts:</b> 3	<b>Local contact(s):</b> Dr. Edward MITCHELL	<i>Received at ESRF:</i>
<b>Names and affiliations of applicants (* indicates experimentalists):</b> Azat Gabdulkhakov*, Albert Guskov* and Wolfram Saenger Institut für Chemie/Kristallographie, Freie Universität Berlin, Takustr.6, D-14195 Berlin Norbert Krauß Institut für Biochemie, Universitäts-Klinikum Charité' der Humboldt-Universität Berlin, Monbijoustr.2, D-10117 Berlin		

### Report:

Photosystem II (PSII) is multisubunit complex embedded in the thylakoid membrane of higher plants, algae and cyanobacteria that catalyzes the oxidation of water to atmospheric oxygen.

So far the highest resolved structure of PSII with resolution of 3Å was obtained in the previous proposal period MX-335. But there is strong need to obtain higher resolution structure to overcome limitations of current model.

Apart from improving the preparation and crystallization of dimeric PSII, we have isolated PSII monomer that is enzymatically as active as dimer and shows the same subunit composition.

Aim of this experiment was testing of diffraction power of monomer crystals grown under new optimized conditions. We collected one dataset from crystals of significantly different shape; unfortunately not completely as such type of crystals was extremely sensitive to radiation damage.

Data statistics is shown below:

Space group C2221 a=116.6 b=222.3 c=332.7	
Wavelength [Å]	1.072
Resolution [Å]	50-3.5

Rsym	0.144(0.590)
Completness [%]	64.1
I/sigma	8.67 (2.29)
Number of observations	182840
Number of unique	35183