

# 2<sup>nd</sup> GKSS / DESY Workshop

## High Energy Materials Science at PETRA III

*N. Schell*

*GKSS-Research Centre Geesthacht GmbH, Max-Planck-Str. 1, 21502 Geesthacht, Germany*

On November 2, 2007, the 2<sup>nd</sup> GKSS / DESY Workshop: High Energy Materials Science at PETRA III took place on the DESY site, see Programme in Fig. 1. Introduced to the future user community of the HEMS Beamline [1] were the current status and design of the beamline with the detailed specifications of its major experimental components (improved surface diffractometer [2], 3D-XRD mapper, customized 1 t hexapod for heavy duty sample / environment handling [3],  $\mu$ -tomography set-up).

The design and construction of the various equipment was motivated by either clearly defined in-house research requirements of the main funding organisation GKSS and its cooperation partners at universities, other research facilities or industry, as well as possible future upgrades in extrapolation of current HASYLAB experiments.

Another major aim of the HEMS staff was the fine-tuning of the best possible optics to realize the envisioned experiments. Therefore, emphasis was put on the optics experience at other 3<sup>rd</sup> generation synchrotron radiation sources, i.e. listening to experience of ESRF and APS.

The 30 registered participants as well as many spontaneous drop-ins enjoyed lively and highly focused discussions on the HEMS case. General agreement was reached on the recommendation to optimise the optics for the unique high-energy characteristics of HEMS, guarantee highest stability of the beam and realize a flexible bending option in Rowland circle geometry with a double Laue horizontal fixed exit monochromator.

### References

- [1] [http://petra3.desy.de/beamlines/work\\_packages/e1036/e1557/index\\_eng.html](http://petra3.desy.de/beamlines/work_packages/e1036/e1557/index_eng.html)
- [2] H. Reichert, V. Honkimäki, A. Snigirev, S. Engemann, H. Dosch, Physica B 336, 46 (2003)
- [3] [Information on http://www.physikinstrumente.com/](http://www.physikinstrumente.com/)

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Friday 2 November 2007

DESY, Notkestr. 85, 22607 Hamburg, building 25f, room 456

## **1<sup>st</sup> Part: Presentation of the GKSS High Energy Materials Science beamline (HEMS)**

Time	Title	Presenter
09:00-09:15	<i>Welcome</i>	A. Schreyer (GKSS), E. Weckert (DESY)
09:15-10:10	<i>Status and design of HEMS</i>	N. Schell (GKSS)
10:10-10:30	<i>Stress and strain mapping</i>	R. Martins (EC JRC Petten)
10:30-11:00	<i>Tomography at PETRA III</i>	A. Haibel (GKSS) / F. Beckmann (GKSS)

Coffee break: 11:00 – 11:30

## **2<sup>nd</sup> Part: Trends and upgrades for high energy synchrotron radiation beamlines**

Time	Title	Presenter
11:30-12:00	<i>High energy optics</i>	J. Patommel (TU Dresden)
12:00-12:30	<i>Focussing experience at ESRF</i>	V. Honkimäki (ESRF)
12:30-13:00	<i>Focussing experience at APS</i>	S. Shastri (APS)

Lunch break: 13:00 – 14:00

## **3<sup>rd</sup> Part: Possible experiments**

Time	Title	Presenter
14:00-14:30	<i>Surface and interface studies</i>	H. Reichert (MPI)
14:30-14:50	<i>High energy diffraction at BW5</i>	M. v. Zimmermann (HASYLAB)
14:50-15:10	<i>Tomography combined with diffraction</i>	A. Pyzalla (MPI)
15:10-15:30	<i>Pump and probe experiments</i>	J. Pelka (IFPAN)

Coffee break: 15:30 – 16:00

Time	Title	Presenter
16:00-16:20	<i>Applications of analytical synchrotron radiation techniques in friction-based joining methods</i>	S. Amancio (GKSS)
16:20-16:40	<i>Complementarity to neutrons</i>	P. Staron (GKSS)
16:40-17:00	<i>Residual stress analysis of single grains at HEMS</i>	W. Reimers (TU-Berlin)

## **4<sup>th</sup> Part: Round table discussion**

Figure 1: Workshop programme.