

### **PETRA III: a Low Emittance High Energy Synchrotron Radiation Source**

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The research center DESY in Hamburg, Germany will transform its 2304m long storage ring PETRA into a third generation synchrotron radiation source from 2007 on. A detailed description of this plan has been published in a technical design report [1]. The key parameters will be as follows: the particle energy will be 6 GeV at a current of 100mA. The horizontal emittance will be 1nmrad which will be a record low value for a high energy storage ring. In order to keep the thermal load on the storage ring as well as on beamline optics constant a top up operation mode is envisaged. In the first phase 13-15 undulator beamlines will be available. Undulators will be between 2m and 20m in length. First users are expected in 2009.

The scientific spectrum of the first beamlines to built ranges from structural biology to hard X-ray materials science. The majority of the planned beamlines will include a micro-focus option taking advantage of the extremely small source size of the storage ring.

[1] a) *PETRA III Technical Design Report*, DESY 2004-035, 2004; b) [http://www-hASYLAB.desy.de/facility/upgrade/petra\\_tdr.htm](http://www-hASYLAB.desy.de/facility/upgrade/petra_tdr.htm)

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