

	<b>Experiment title:</b> 1 dimensional charge ordering in Yb <sub>4</sub> As <sub>3</sub>	<b>Experiment number:</b> HE-744
<b>Beamline:</b> ID11	<b>Date of experiment:</b> from: 19.6.2000 to: 24.6.2000	<b>Date of report:</b> 27.2.01
<b>Shifts:</b> 1 2	<b>Local contact(s):</b> G. Vaughan	<i>Received at ESRF:</i>
<b>Names and affiliations of applicants (* indicates experimentalists):</b> U. Staub (Swiss Light Source, Paul Scherrer Institute) B. D. Patterson (dito) M. Shi (dito)		

## **Report:**

**Abstract:** U. Staub, B. D. Patterson, C. Schulze-Briese, F. Fauth, M. Shi, L. Soderholm, G. B. M. Vaughan, and O. Ochiai, *Europhys. Lett.* **53**, 72 (2001).

Resonant x-ray diffraction results on the Yb L<sub>3</sub> absorption edge of Yb<sub>4</sub>As<sub>3</sub> are reported. The strong enhancement at the absorption edge of reflections of type 30 $\bar{3}$  at temperatures below the first order phase transition is viewed as direct evidence of a 1-dimensional charge order. The quantitative determination of the charge ordering, which does not follow the structural distortion, has direct impact on models describing the unusual electronic and magnetic properties of this material.