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$ZrW_2O_8$  has been reported to show a highly unusual property of isotropic negative thermal expansion over its entire stability temperature range of 0.3 to 1050 K at room pressure<sup>(1)</sup>. Evans *et al.*<sup>(2)</sup> recently observed a phase transformation from cubic to orthorhombic structure at 2 kbar and room temperature. The high pressure phase also shows a negative thermal expansion from 0 to 300 K. This suggests that this material may have very unusual behavior under high pressure.

We have carried out *in situ* x-ray diffraction measurements at very high pressure up to 200 kbar at X17B1. A newly developed T-cup multi-anvil high pressure cell<sup>(3)</sup> was used for the pressure generation. The x-ray diffraction shows that under compression,  $ZrW_2O_8$  undergoes amorphization at 10 kbar, and the amorphous phase remains stable until 200 kbar at room temperature (Figure 1). Upon heating, the amorphous phase decomposes at 1000 K and 18 kbar. The behavior of  $ZrW_2O_8$  under pressure is interesting. The mechanism of the amorphization is under investigation.

References:

<sup>(1)</sup>T. A. Mary, J. S. O. Evans, T. Vogt, and A. W. Sleight, *Science* 272, 90 (1996).

<sup>(2)</sup>J. S. O. Evans, J. D. Jorgensen, D. N. Argriou, Z. Hu, S. Short, R. Osborn, and A. W. Sleight (in preparation).

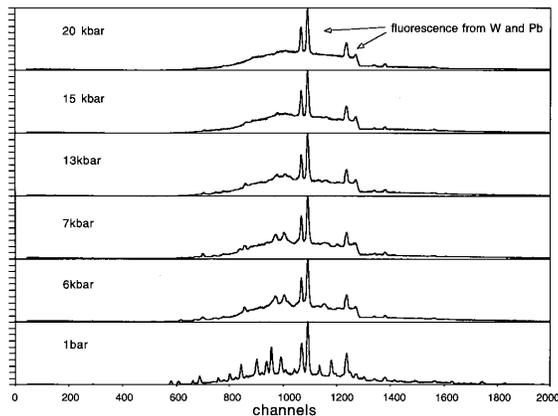


Figure 1. Diffraction patterns of  $ZrW_2O_8$  at different pressures