

Anisotropy in the thermal expansion of uranium silicide measured by neutron diffraction

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Journal of Nuclear Materials

DOI: 10.1016/j.jnucmat.2018.04.049

Published: 01/09/2018

Peer reviewed version

Cyswllt i'r cyhoeddiad / Link to publication

Dyfyniad o'r fersiwn a gyhoeddwyd / Citation for published version (APA): Obbard, E. G., Johnson, K. D., Burr, P. A., Lopes, D. A., Gregg, D. J., Liss, K.-D., Griffiths, G., Scales, N., & Middleburgh, S. C. (2018). Anisotropy in the thermal expansion of uranium silicide measured by neutron diffraction. Journal of Nuclear Materials, 508, 516-520. https://doi.org/10.1016/j.jnucmat.2018.04.049

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Figures and Captions for Obbard et al. 'Anisotropy in the thermal expansion of uranium silicide measured by neutron diffraction'



Graphical Abstract



Figure 1: (a) Optical micrograph and (b) backscattered electron SEM micrograph of ascast U₃Si₂ sample material.



Figure 2: Neutron diffraction pattern and Rietveld/Le Bail refinement models for U_3Si_2 in an Al₂O₃ tube at 1305 °C.



Figure 3: Thermal strain in U_3Si_2 *a* and *c* lattice parameters and in cell volume (data for *c* and *v* are offset from *a*).



Figure 4: Linear thermal expansion coefficients of U_3Si_2 calculated from local derivative of thermal strain and from fitting Eqn. 2 to volumetric thermal strain. Data points from [3]. Height of shading and thickness of line is their standard error. The line is $\alpha(T)=2.10\times10^{-5} - 7.25\times10^{-9}\times T$.



Figure 5: Normalized intensity of selected U₃Si₂ diffraction peaks and of the unidentified peak marked by the arrow in Figure 1; shaded area heights indicate standard error; (for b&w: series/legend order in y direction corresponds at 1000°C).