A TEM study on ZrO$_2$-rich phases in the quasibinary system ZrO$_2$-Zr$_3$N$_4$: Comparison between fast and slowly cooled samples

A. T. Tham$^1$, C. Rödel$^2$, M. Lerch$^2$, D. Wang$^1$, D. S. Su$^1$, A. Klein-Hoffmann$^1$, and R. Schlögl$^1$

$^1$ Fritz-Haber-Institut der Max-Planck-Gesellschaft, Faradayweg 4-6, 14195 Berlin, Germany
$^2$ Institut für Chemie, Technische Universität Berlin, Straße des 17. Juni 135, 10623 Berlin, Germany

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Abstract

A thorough comparison between the slowly and fast cooled β”-type oxynitrides of zirconium has been carried out by means of transmission electron microscopy. This work aims at detecting and analyzing the so-called “modulated” β” phase, which has been involved in the introduction of ordered anion vacancies through nitridation of zirconia. The gained information from the occurrence of such a modulated phase and the manner, in what it appears, do support the suggested structure model, which had been developed in early works in order to get a better understanding of the typical phase transitions in zirconium oxynitrides.

e-mail: lerch@chem.tu-berlin.de, Tel. +49 30 314 22603