

SUPPORTING INFORMATION AVAILABLE

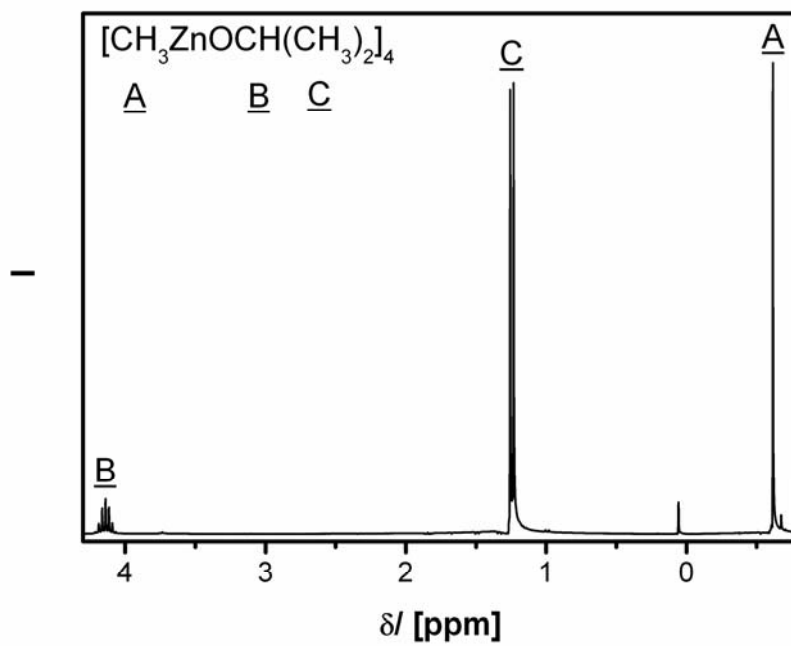
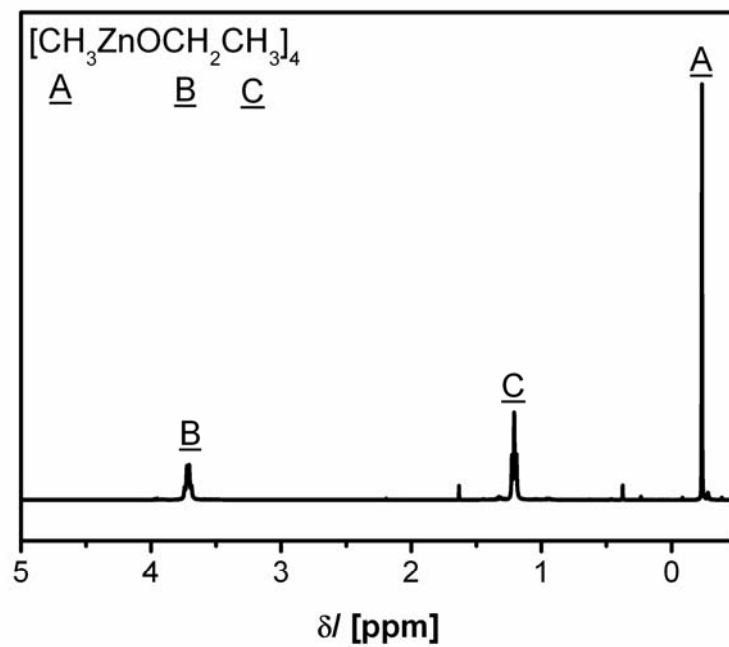
Nucleation and Growth of ZnO in organic solvents - An in-situ study

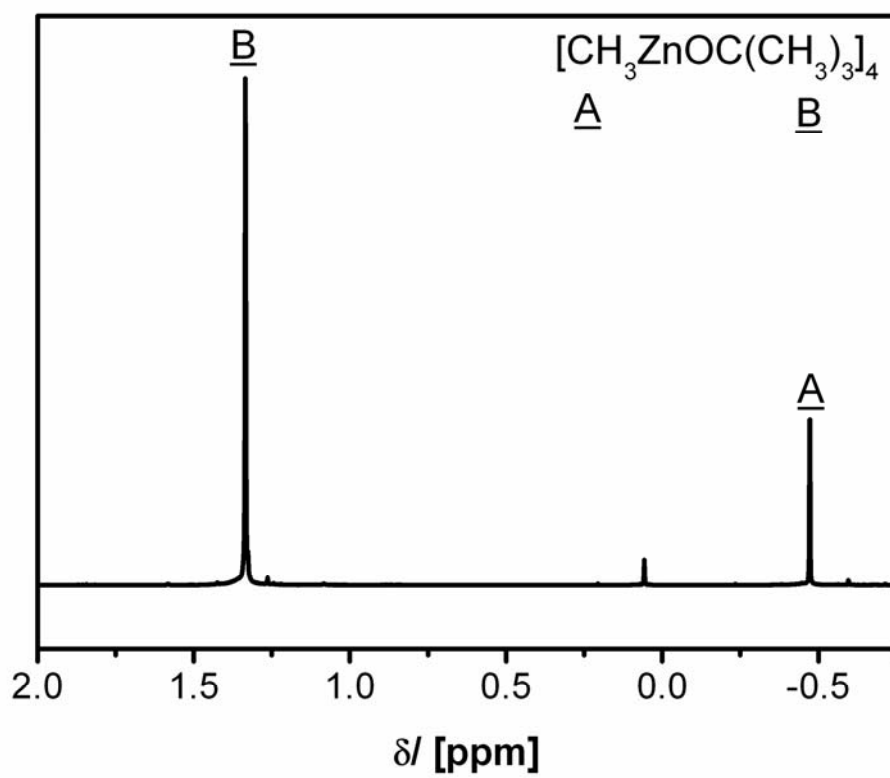
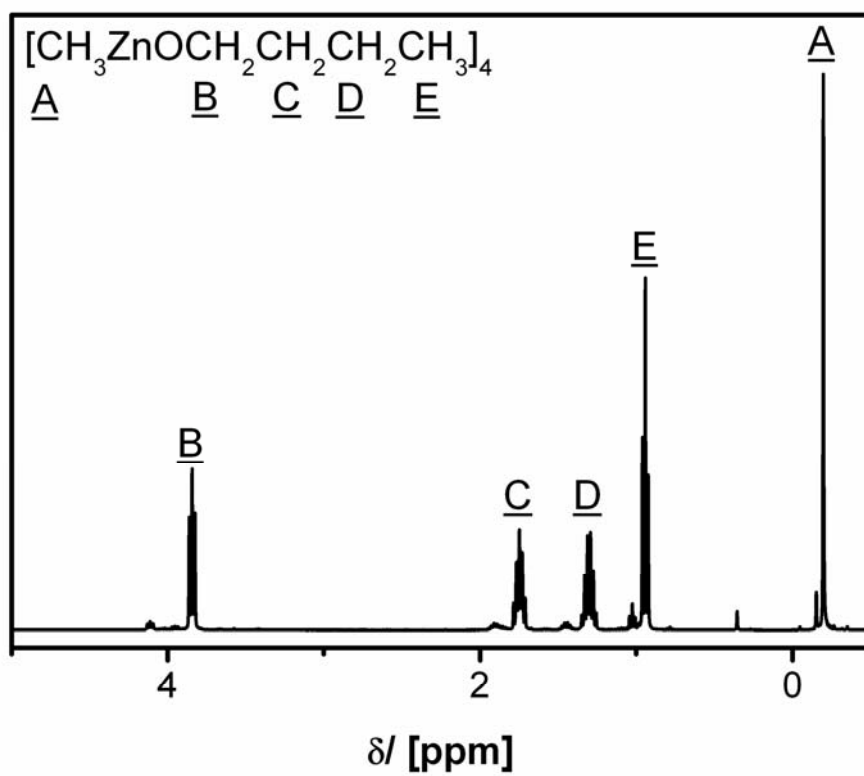
Carlos Lizandara-Pueyo,^(a) Maurits W. E. van den Berg,^(b) Andrea de Toni^(b) Tobias

*Goes,^(a) Sebastian Polarz^(a)**

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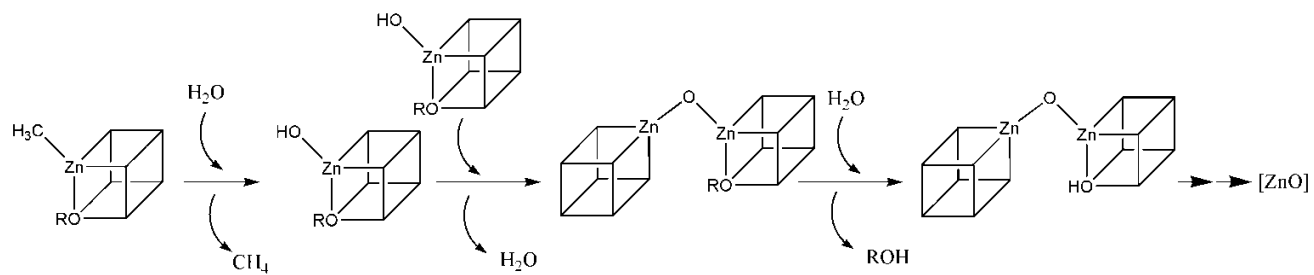
Additional ^1H -NMR data of selected heterocubanes $[\text{MeZnOR}]_4$



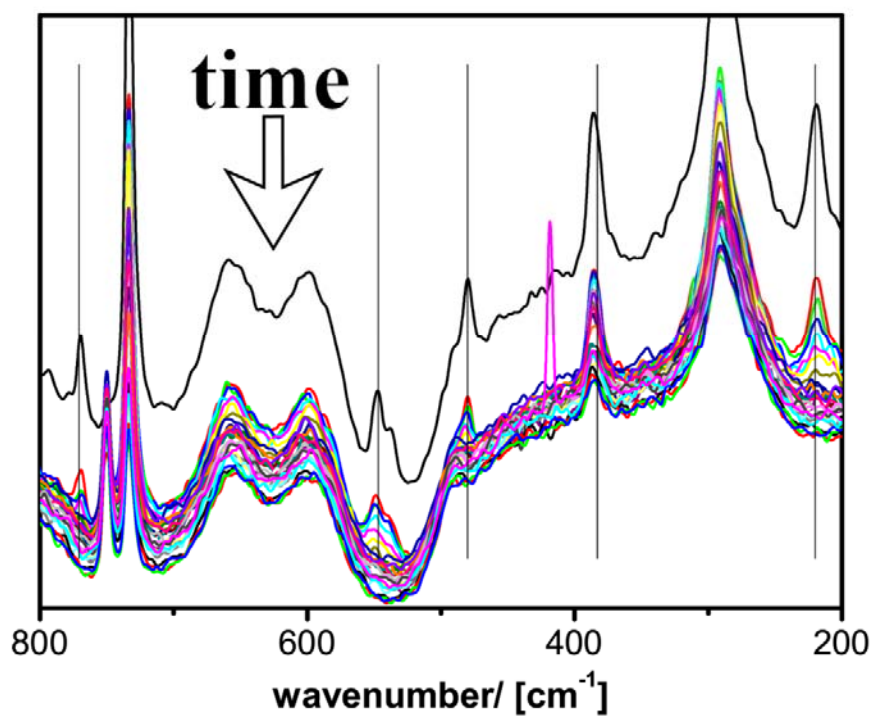


S-2

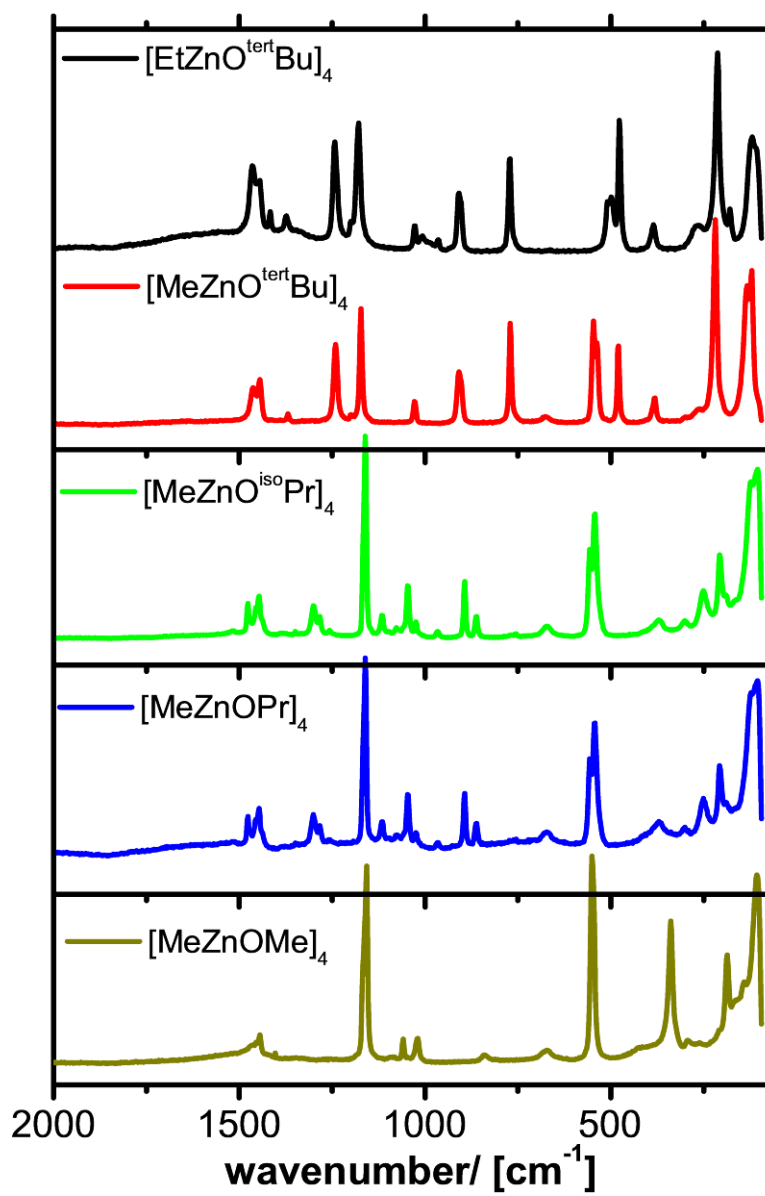
Excluded, alternative mechanism for the reaction of heterocubane precursors with water:



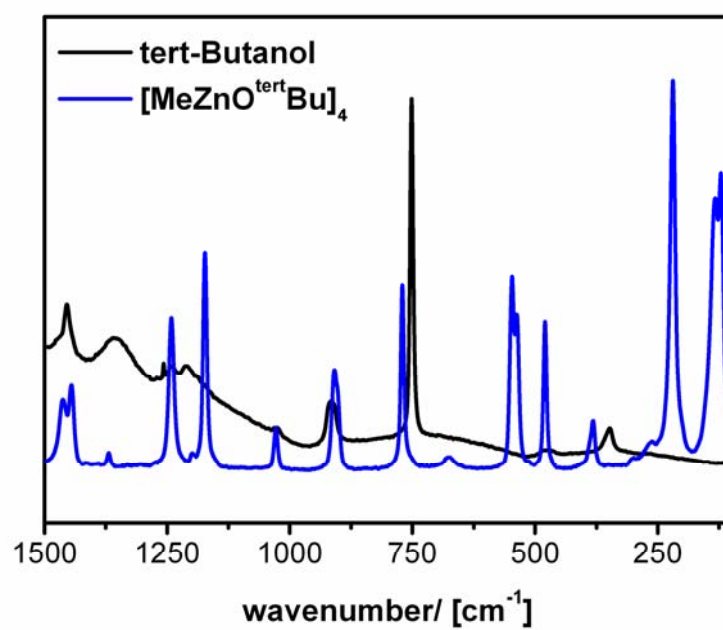
In-situ FT-Raman investigation of the reaction of $[\text{MeZnO}^{\text{tert}}\text{Bu}]_4$ with water



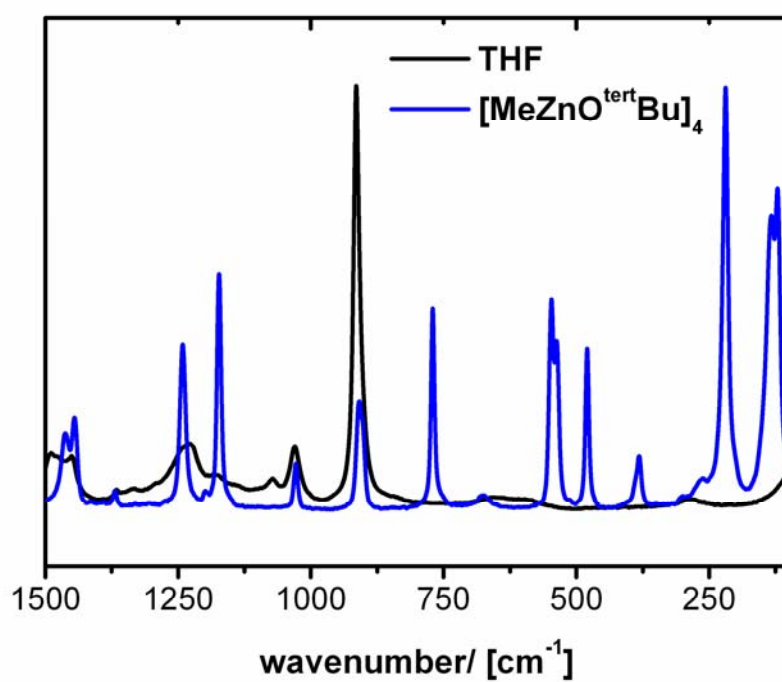
The reaction was performed in THF as a solvent and $T = 5^\circ\text{C}$. Therefore, the Raman signals of THF are also seen in the spectra. The spectrum at $t = 0\text{s}$ is accentuated for better visibility. Raman spectra were recorded every 45s. Bands corresponding to the precursor $[\text{MeZnO}^{\text{tert}}\text{Bu}]_4$ are marked by the vertical line.

Raman-spectra of molecular, heterocubane precursors and references

Raman spectra of different heterocubanes precursors



Comparison of the Raman spectrum of tert-butanol with [MeZnO^{tert}Bu]₄.

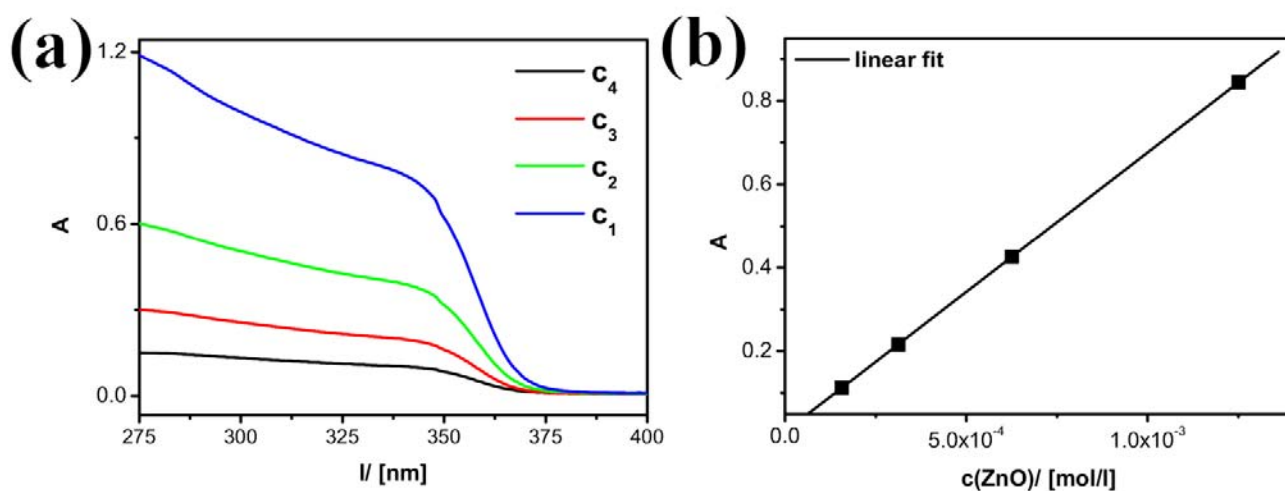


Comparison of the Raman spectrum of THF with [MeZnO^{tert}Bu]₄.

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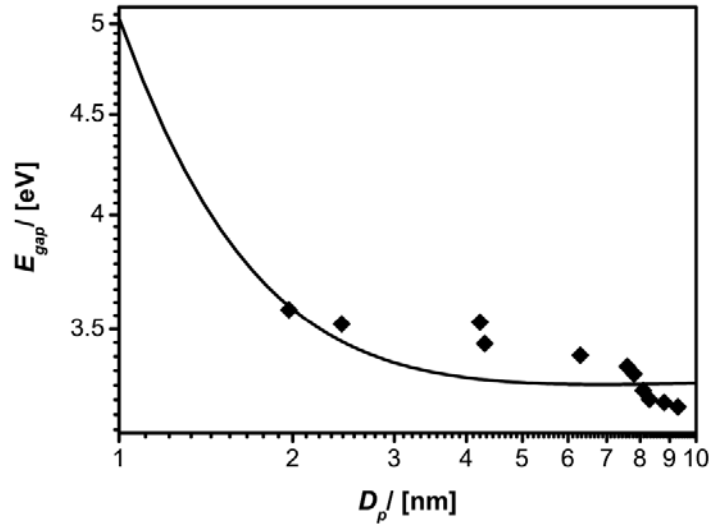
Determination of the extinction coefficient ε for ZnO in homogeneous THF solution at $\lambda = 325$ nm.

A colloidal solution containing ZnO-particles with average diameter of ≈ 3 nm was prepared.²⁷ A concentration series with $c(\text{ZnO})$ was prepared: $c_1 = 1.25 \cdot 10^{-3}$ mol/l, $c_2 = 6.26 \cdot 10^{-4}$ mol/l, $c_3 = 3.13 \cdot 10^{-4}$ mol/l, $c_4 = 1.56 \cdot 10^{-4}$ mol/l. UV-Vis absorption spectra were acquired (see Fig. S-3a), and $\varepsilon_{\lambda=325\text{nm}}$ was calculated from the slope of a plot of the absorption value at $\lambda = 325$ nm against $c(\text{ZnO})$ (see Fig. S-3b).



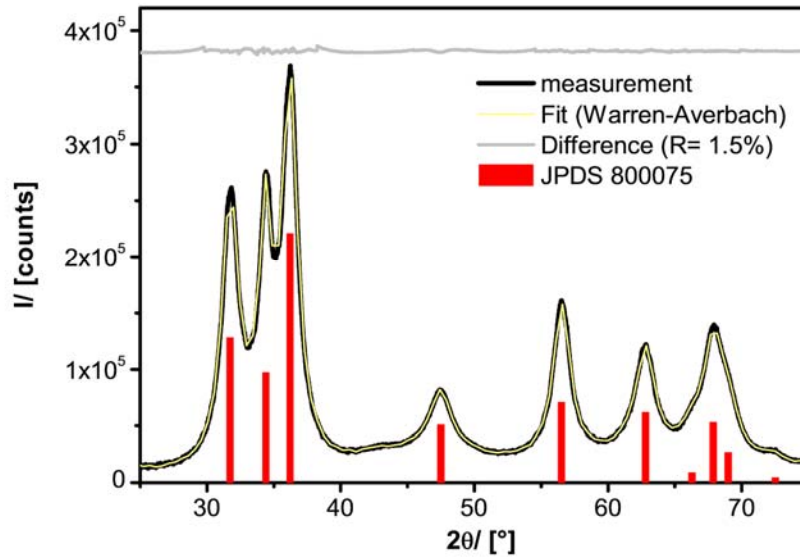
S-6

E_{GAP} versus D_p



The dependency of E_{gap} from ZnO particle size according to the effective mass model by Brus (black curve) and the values determined experimentally from our samples.

Warren-Averbach evaluation of PXRD data

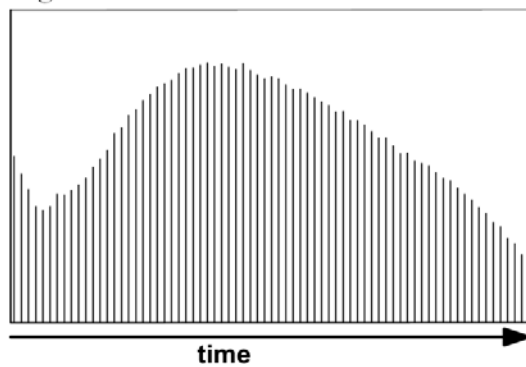


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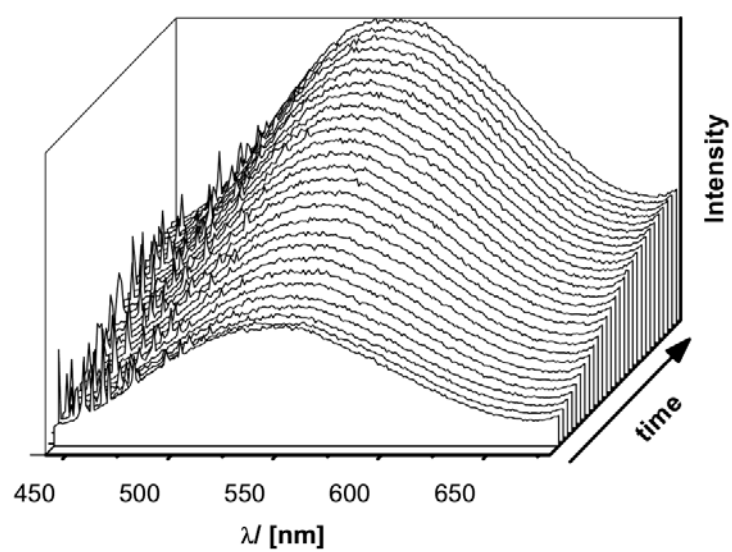
Further information on fluorescence spectra

Signal at 367 nm

Signal at 367 nm

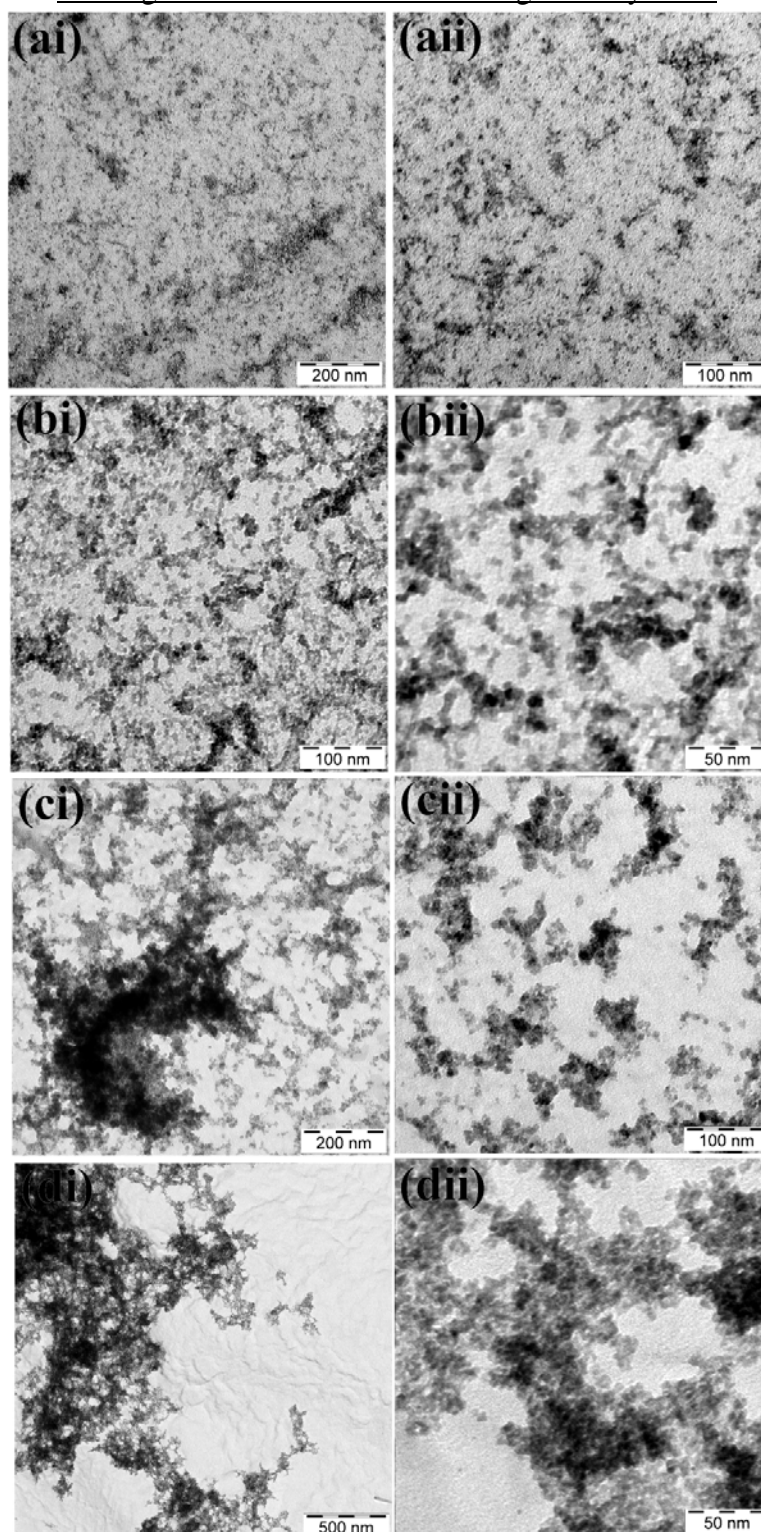


Defect luminescence



S-8

Investigation of ZnO nucleation and growth by TEM



Samples taken at $t = 30$ min (a), $t = 43$ min (b), $t = 66$ min (c), $t = 78$ min (d). For each sample two different magnifications are shown.

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The sample-cell used for XAS measurements

