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Microwave synthesis and field effect transistor performance of stable colloidal indium-zinc-oxide nanoparticles

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Supplementary information

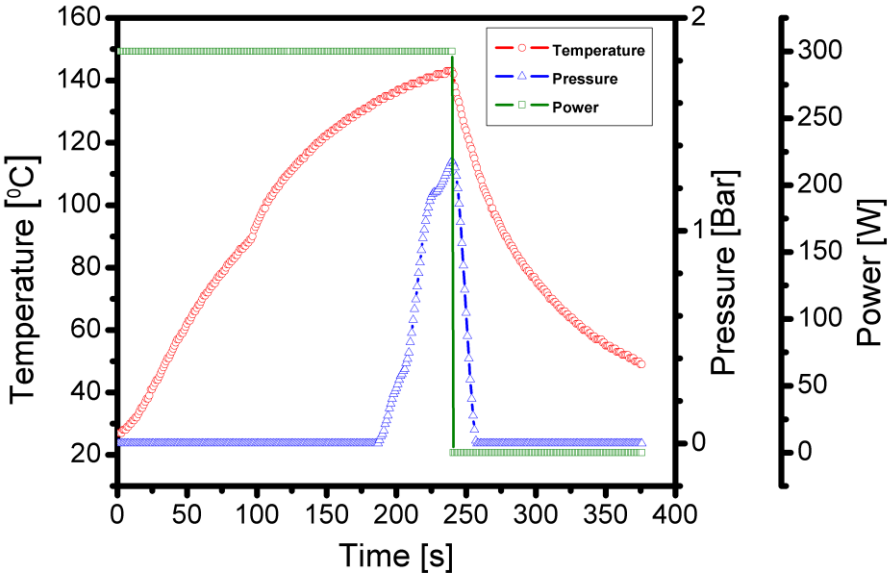

Figure 1: Development of temperature, pressure and power in the microwave oven during the IZO synthesis for 4 minutes.

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Figure 2: Upper trace: Photograph of an indium and zinc precursor mixture before (above left) and after microwave synthesis (above right);
Lower trace: Real time video sequence showing the formation of the stable IZO suspensions using microwave irradiation at 140°C. The video can be downloaded.

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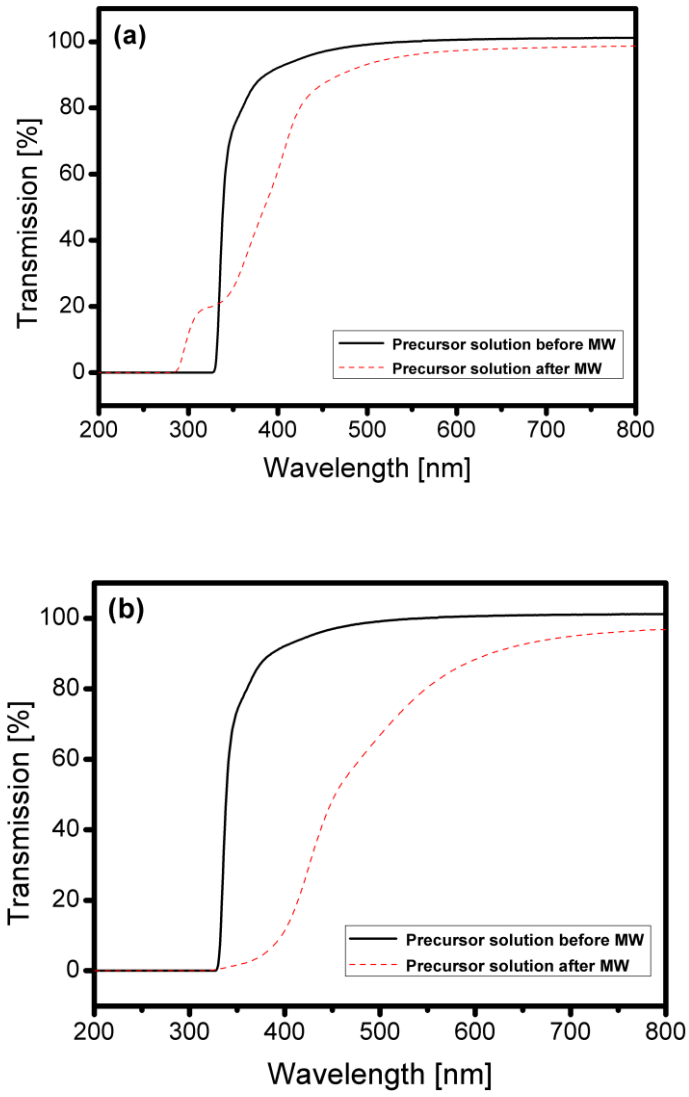

Figure 3: UV-Vis spectra of the mixed precursor solution before and after microwave (MW) synthesis using (a) 2-methoxyethanol and (b) 2-ethoxyethanol as a solvent.

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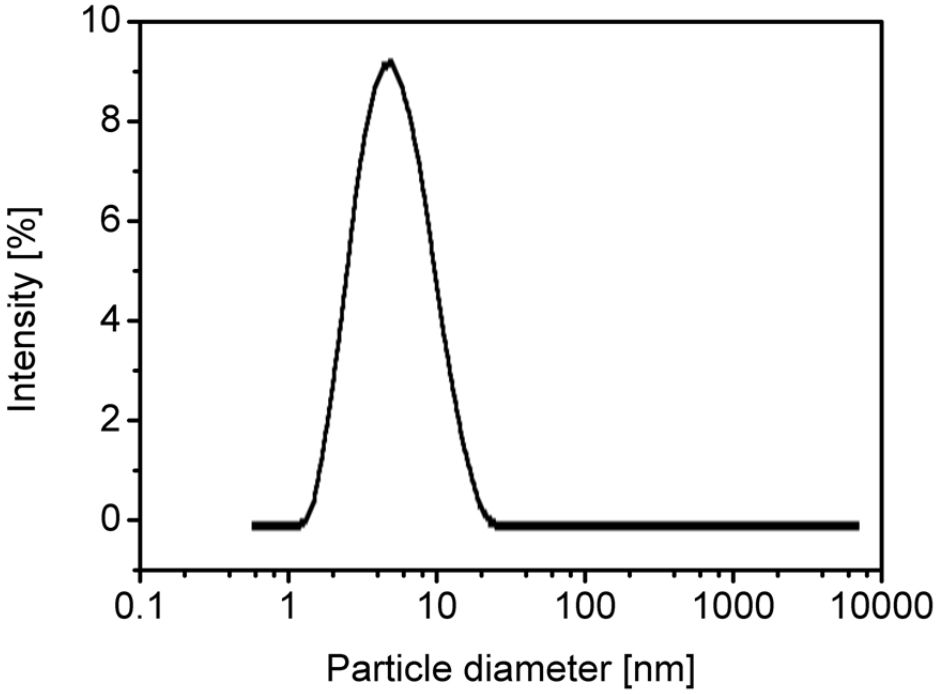

Figure 4: Particle size distribution as determined by Dynamic Light Scattering for the as-prepared Indium-zinc-oxide suspension.

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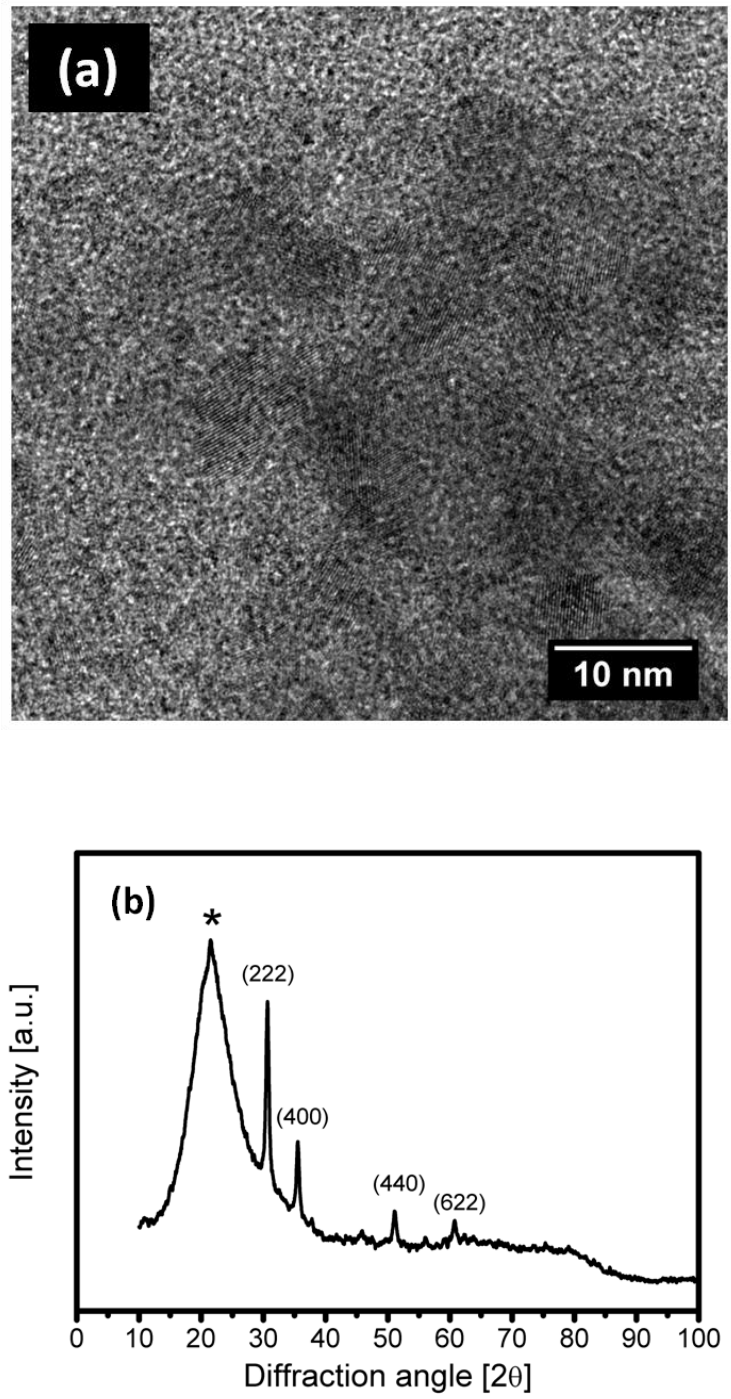

Figure 5: (a) HRTEM image of In_2O_3 particles and (b) GI-XRD diffractrogram of In_2O_3 films (* quartz substrate), both after annealing at 200 °C.

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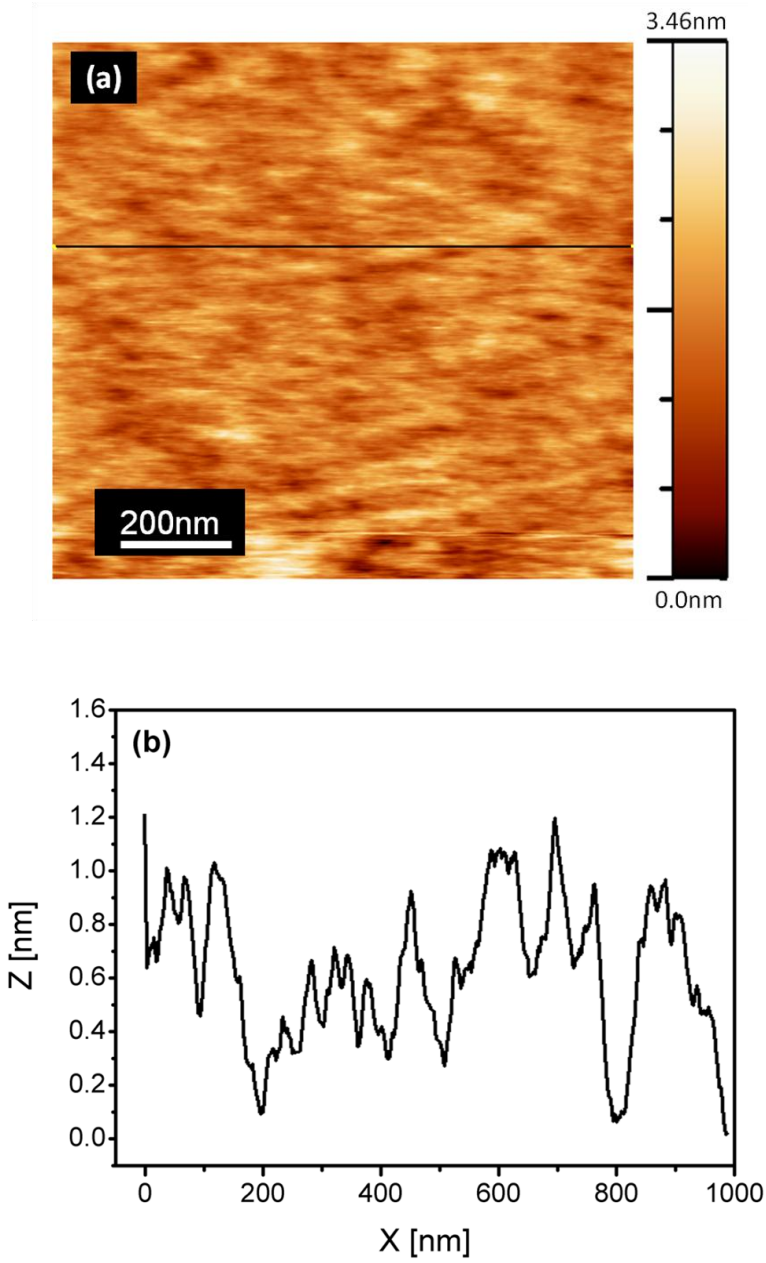

Figure 6: (a) AFM topography of an IZO film obtained after annealing at 450 °C (RMS roughness = 1.1 nm) and (b) corresponding height profile along the horizontal line segment marked above in (a).