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Electrical characterization of introduced in bulk grown ZnO during electron beam exposure

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Abstract content (Max 300 words)
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We have investigated by deep level transient spectroscopy (DLTS) the defects introduced in ZnO during electron beam exposure (EBE). In EBE, the samples were exposed to e-beam conditions, without metal deposition prior to Pd Schottky barrier diodes deposited by resistive evaporation. Melt grown ZnO contains three prominent defects, E1 at EC-120 meV, E3 at EC-300 meV and E4 at EC-690 meV. After the EBE a number of new defects were introduced that were not previously observed after electron beam deposition (EBD). The EBE-induced defects were caused by particles that were implanted during the EBE process and diffused deeper into the ZnO. There was not enough energy available to generate Frenkel pairs, thus the discrete breathers mechanism is required to transfer energy deep into the material to generate E-centers.

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MSc

Main supervisor (name and email) and his / her institution

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