
HL 47: Invited Talk Meyer

Time: Thursday 14:00–14:45

Location: HSZ 01

Invited Talk HL 47.1 Thu 14:00 HSZ 01
Homoeptaxy and optical properties of ZnO epilayers grown on Zn- and O-polar substrates — BRUNO MEYER¹, STEFAN LAUTENSCHLAEGER¹, MARKUS WAGNER², and ●AXEL HOFFMANN² —
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Homoeptaxial growth of ZnO has the great potential to provide high quality epilayers without strain or dislocations induced by the mismatch of lattice or thermal expansion coefficients. The current understanding of the impact of surface polarity on unintentional impurity incorporation, strain and doping is still on an early stage. We report on the effect of the substrate polarity on the structural and optical

properties of homoeptaxially grown ZnO epilayers. Essential for 2D-growth is the surface preparation of the bulk substrates. Nominally undoped ZnO layers of approximately 1.2 μm in thickness were grown by chemical vapor deposition on Zn- and O-polar ZnO substrates. The epilayers were grown simultaneously in the same reactor to ensure direct comparability between the samples. The effect of impurities and their correlation to local strain fields in the epilayers and substrates is evaluated. Bound exciton recombinations differ significantly for the two polar surfaces. The Zn termination favours the incorporation of nitrogen acting as a shallow acceptor. First results of growth on a-plane ZnO will be presented.