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Photoluminescence and resonant Raman scattering in highly conductive ZnO layers

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Abstract

Photoluminescence (PL) and resonant Raman scattering (RRS) excited by the 351.1nm line of an Ar^+ laser were studied in highly conductive ZnO layers deposited by thermal decomposition of $Zn(C_5H_7O_2)_2$ metalorganic compound on porous InP substrates. The emission spectra consist of multiphonon RRS lines superimposed on a broad asymmetric PL band with the maximum at 3.36eV. The occurrence of PL and RRS is attributed to tailing of the density of states caused by potential fluctuations due to randomly distributed intrinsic defects.