

Electronic Supplementary Information
**Chemical Structure and Optical Signatures of Nitrogen Acceptors
in MgZnO**

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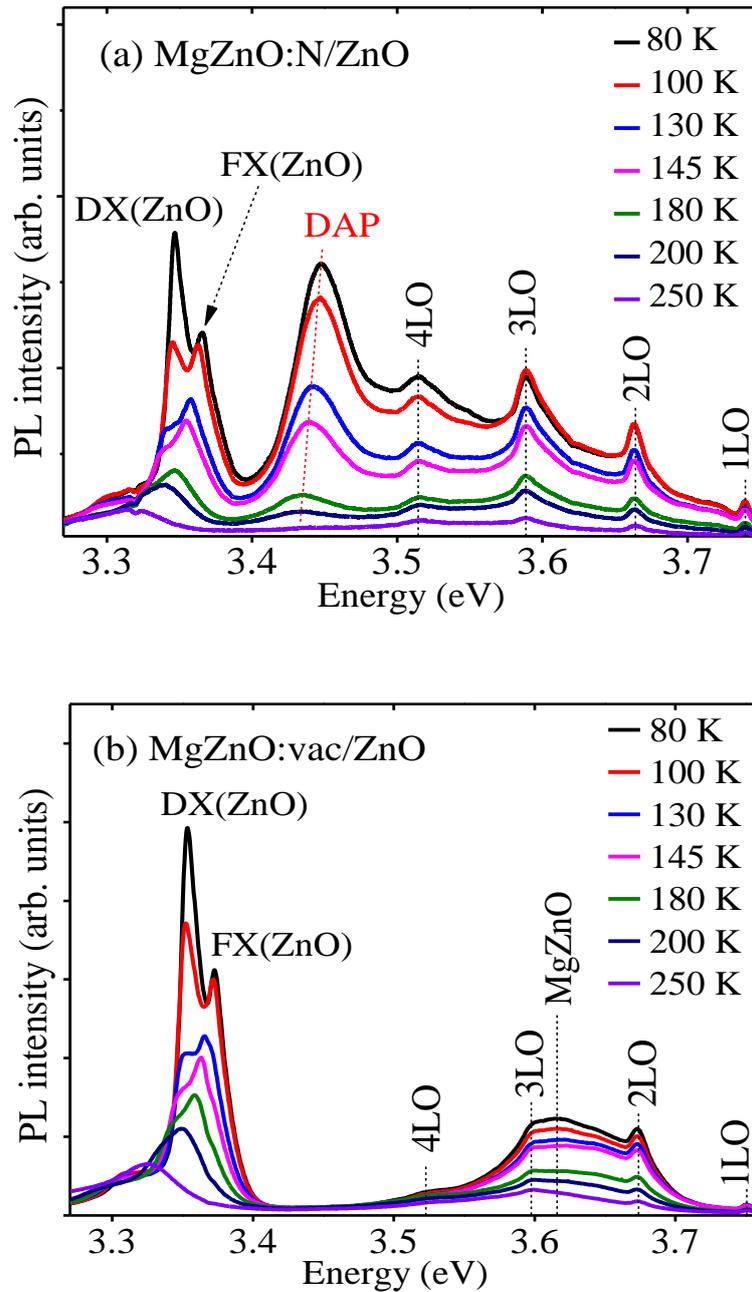


Fig S1: Temperature-resolved PL spectra for (a) MgZnO:N/ZnO and (b) MgZnO:vac/ZnO bilayer. The sharp peaks at ~3.35 and 3.37 eV at 80 K, are assigned to the recombination of free excitons (FX) and donor-bound excitons (DX) in the ZnO underlayer, respectively. The N-related DAP emission peaked at 3.45 eV at 80 K is dominant in the MgZnO:N layer; this emission is absent in the MgZnO:vac over the entire temperature range investigated. The periodic set of Raman peaks, labelled 1LO, 2LO, 3LO and 4LO, are due to multiphonon resonant Raman scattering.