

Supplementary Materials: Enhanced Electrical Properties and Stability of P-Type Conduction in ZnO Transparent Semiconductor Thin Films by Co-Doping Ga and N

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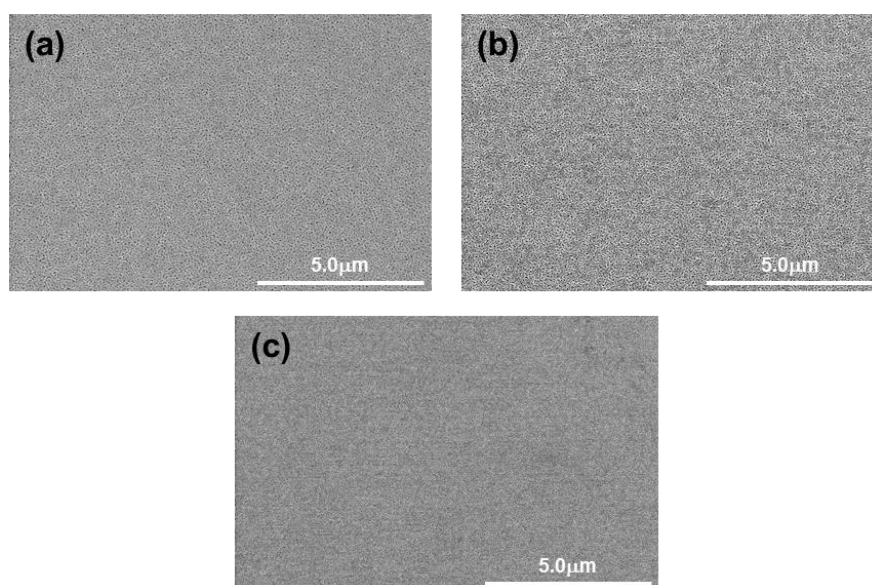


Figure S1. Plane-view FE-SEM micrographs of ZnO-based thin films: (a) undoped, (b) N-doped, and (c) Ga–N co-doped samples.

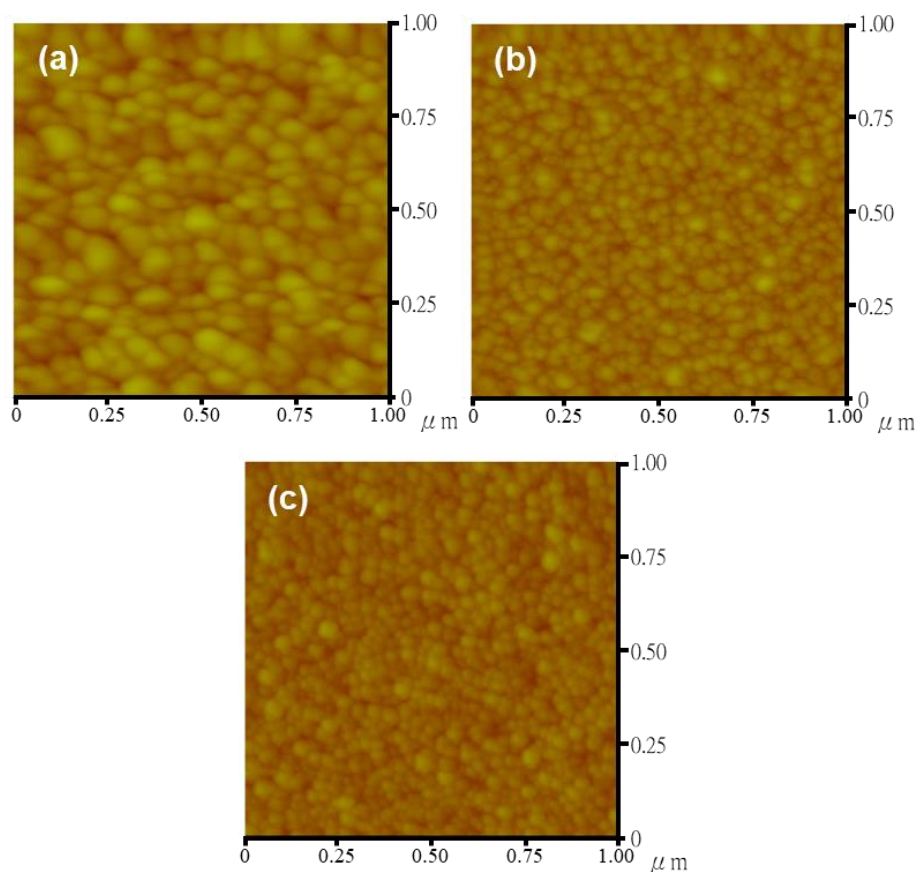


Figure S2. 2D SPM images of ZnO-based thin film surfaces: (a) undoped, (b) N-doped, and (c) Ga–N co-doped samples.

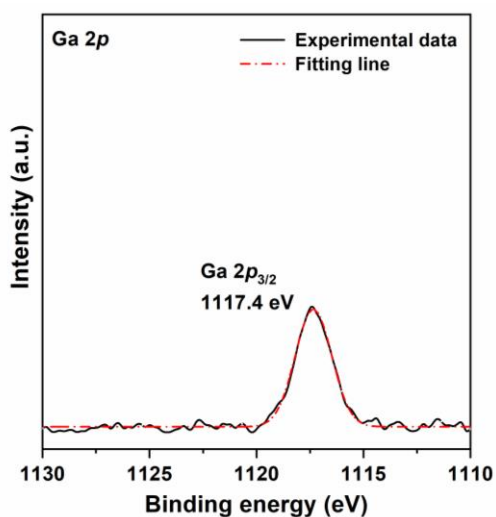


Figure S3. Core-level XPS spectrum of Ga 2p of the Ga–N co-doped ZnO thin film.

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