Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Electrical contact of wurtzite GaN mircrodisks on *p*-type GaN template CHENG-DA TSAI, IKAI LO, YING-CHIEH WANG, YU-CHI HSU, CHENG-HUNG SHIH, WEN-YUAN PANG, SHUO-TING YOU, CHIA-HSUAN HU, MITCH M.C. CHOU, CHEN-CHI YANG, YU-CHIAO LIN, Department of Physics, Department of Materials and Optoelectronic Science, Center for Nanoscience and Nanotechnology, National Sun Yat-Sen University — We developed a back processing to fabricate a secure electrical contact of wurtzite GaN microdisk on a transparent p-type GaN template with the orientation, $[10\text{-}10]_{\text{disk}}$ // $[10\text{-}10]_{\text{template}}$. GaN microdisks were grown on $LiAlO_2$ substrate by using plasma-assisted molecular beam epitaxy [1]. In the further study, we analyzed the TEM specimen of a sample with annealed GaN microdisk/p-typed GaN template by selection area diffraction (SAD) to confirm the alignment of the microdisks with the template at the interface. From the I-V measurements performed on the samples, we obtained a threshold voltage of ~ 5.9 V for the current passing through the GaN microdisks with a resistance of ~ 45 KΩ. The electrical contact can be applied to the nanometer-scaled GaN light-emitting diode.

[1] I. Lo, et at., Appl. Phys. Lett, **105**, 082101 (2014).

Cheng-Da Tsai
Dept of Physics, Department of Materials and Optoelectronic Science,
Center for Nanoscience and Nanotechnology,
National Sun Yat-Sen University

Date submitted: 11 Nov 2014 Electronic form version 1.4