

Abstract Submitted  
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**Generation of acoustic terahertz waves in hybrid InGaN/GaN quantum wells** MEG MAHAT, Department of Physics, University of North Texas, Denton, TX 76203, ANTONIA LLOPIS, Department of Electrical and Computer Engineering, Duke University, Durham, NC 27708, TAE YOUL CHOI, Department of Mechanical and Energy Engineering, University of North Texas, Denton, TX 76203, SERGIO PERIERA, CICECO, Universidade de Aveiro, 3810-193 Aveiro, Portugal, IAN WATSON, SUPA, Institute of Photonics, University of Strathclyde, Glasgow, UK, ARUP NEOGI, Department of Physics, University of North Texas, Denton, TX 76203 — We have carried out differential transmission measurements on InGaN/ GaN quantum wells with Au nanoparticles inserted inside V-pits with high filling fraction. We have observed acoustic wave packets generated with multiple THz frequencies as 0.12 THz from GaN buffer layer, 0.22 THz from Au-InGaN multiple quantum wells region, 0.07 THz from sapphire substrate, and 0.17 THz mixed signals from the sample. These THz wave packets are observed as a result of generation of coherent acoustic phonons propagating in hybrid Au-InGaN quantum wells. The study of these acoustic THz wave generation is crucial for the imaging of nanostructures.

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