Characterization of electrospun GaN nanofibers IDALIA RAMOS, ANAMARIS MELENDEZ, KRISTLE MORALES, University of Puerto Rico at Humacao, EVA M. CAMPO, Lehigh University, JORGE J. SANTIAGO-AVILES, University of Pennsylvania, PENN-UPRH PARTNERSHIP (PREM) COLLABORATION — Gallium Nitride shows characteristics pertinent to optoelectronics and gas sensing applications. Nanofibers have been produced using electrospinning and a precursor composed of Gallium (III) Nitrate Hydrate dissolved in Dimethylacetamide and Cellulose Acetate in Acetone and DMA. The resulting nanofibers were sintered at 400°C in nitrogen for one hour to decompose the polymer, the furnace atmosphere switched to ammonia and the fibers sintered for periods of 3, 5 and 7 hrs at 900°C. They showed morphologies with unclear dependence on processing parameters. X-ray Diffraction revealed the evolution towards wurtzite phase through annealing. From line broadening we estimate a crystalline domain size of about 12 nm. Transmission Electron Microscopy suggests nucleation and growth of X-tallites while Fourier-Transform Infrared Spectroscopy and Ultraviolet-Visible Spectroscopy confirm the material evolution towards crystallinity and the production of wurtzite GaN nanofibers. I-V characteristics of single nanofibers show linearity with increments in conductivity for those fibers ammoniated during longer periods of time. Ongoing efforts aim at improving fabrication, sensing and photoluminescence characterization.