

High Thermal Selective Detection of NO_x Using High Electron Mobility Transistor Based on Gallium Nitride

Authors : Hassane Ouazzani Chahdi, Omar Helli, Bourzgui Nour Eddine, Hassan Maher, Ali Soltani

Abstract : The real-time knowledge of the NO, NO₂ concentration at high temperature, would allow manufacturers of automobiles to meet the upcoming stringent EURO7 anti-pollution measures for diesel engines. Knowledge of the concentration of each of these species will also enable engines to run leaner (i.e., more fuel efficient) while still meeting the anti-pollution requirements. Our proposed technology is promising in the field of automotive sensors. It consists of nanostructured semiconductors based on gallium nitride and zirconia dioxide. The development of new technologies for selective detection of NO and NO₂ gas species would be a critical enabler of superior depollution. The current response was well correlated to the NO concentration in the range of 0-2000 ppm, 0-2500 ppm NO₂, and 0-300 ppm NH₃ at a temperature of 600.

Keywords : NO_x sensors, HEMT transistor, anti-pollution, gallium nitride, gas sensor

Conference Title : ICST 2018 : International Conference on Sensing Technology

Conference Location : New York, United States

Conference Dates : June 03-04, 2018