# TERAHERTZ SPECTROSCOPIC MOLECULAR SENSOR FOR QUANTITATIVE ANALYTICAL GAS SENSING

DANIEL J TYREE, *Department of Physics, Wright State University, Dayton, OH, USA*; PARKER K HUNTINGTON, *Department of Physics, MIT, Cambridge, MA, USA*; ROBERT M SCHUELER, *Department of Physics, Wright State University, Dayton, OH, USA*; JENNIFER HOLT, CHRISTOPHER F. NEESE, *Department of Physics, The Ohio State University, Columbus, OH, USA*; IVAN MEDVEDEV, *Department of Physics, Wright State University, Dayton, OH, USA*.

Quantitative analytical gas sampling is of great importance in a range of environmental, safety, and scientific application. In this article we present the design, operation, and performance of a recently developed table top Terahertz spectroscopic molecular sensor capable of rapid (minutes) and sensitive (part per trillion level of dilution) detection of a wide range of gaseous analytes with 'absolute' specificity. The technique presented in this paper excels at detecting light polar volatile compounds which often challenge the capabilities of competing gas sensing techniques.