

Abstract Submitted  
for the APR17 Meeting of  
The American Physical Society

**Photoacoustic Effect of Ethene: Sound Generation due to Plant Hormone Gases.** HAN JUNG PARK, DAVID IDE, the University of Tennessee at Chattanooga, THE UNIVERSITY OF TENNESSEE AT CHATTANOOGA TEAM — Ethene, which is produced in plants as they mature, was used to study its photoacoustic properties using photoacoustic spectroscopy. Detection of trace amounts, with N<sub>2</sub> gas, of the ethylene gas were also applied. The gas was tested in various conditions: temperature, concentration of the gas, gas cell length, and power of the laser, were varied to determine their effect on the photoacoustic signal, the ideal conditions to detect trace gas amounts, and concentration of ethylene produced by an avocado and banana. A detection limit of 10 ppm was determined for pure C<sub>2</sub>H<sub>4</sub>. A detection of 5% and 13% (by volume) concentration of ethylene were produced for a ripening avocado and banana, respectively, in closed space.

Han Jung Park  
the University of Tennessee at Chattanooga

Date submitted: 21 Dec 2016

Electronic form version 1.4