

## Silver nanorod arrays as High Sensitivity SERS Substrates

Stephen B. Chaney<sup>1</sup>, Sarat Shanmukh<sup>2</sup>, Richard A. Dluhy<sup>2, 4, 5</sup>, Y-P. Zhao<sup>1, 4, 5</sup>, Ralph A. Tripp<sup>3, 5</sup>, Jane Bertone<sup>6</sup>

<sup>1</sup>) Department of Physics and Astronomy, University of Georgia, Athens, GA 30602

<sup>2</sup>) Department of Chemistry, University of Georgia, Athens, GA 30602

<sup>3</sup>) Department of Infectious Diseases, University of Georgia, Athens, GA 30602

<sup>4</sup>) Faculty of Engineering, University of Georgia, Athens, GA 30602

<sup>5</sup>) Nanoscale Science and Engineering Center, University of Georgia, Athens, GA 30602

<sup>6</sup>) EIC Labs, Norwood, MA 02062

**Abstract:** Surface Enhanced Raman Spectroscopy (SERS) has received renewed interest as a method for detecting biological and chemical compounds due to the emergence of new methods for substrate preparation and collection techniques. We have developed Silver nanorod arrays which produce SERS enhancement factors of  $>10^8$  and have demonstrated the detection of viruses and hazardous chemical compounds with high sensitivity.