

Abstract Submitted
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Raman spectroscopy on a paper for background-free chemical sensing¹ DANIEL BAILEY, Saint Mary's Univ — Raman Spectroscopy has innovated the way we collect data and analyze different materials ranging from organic to inorganics. It allows us to get a quick reading of any substance due to its vibrational energy. Each vibrational signal we can detect helps us determine what its chemical composition. The Raman signal can be significantly enhanced with the help of Surface Enhanced Raman Scattering (SERS) on a so-called SERS substrate. The higher the intensity that we can get, the better we can determine its composition. The advantages of using SERS substrates lies in its super sensitivity that can achieve in detection and identification of chemical substances. Places where SERS devices could be useful are when a response must be taken in real time with high sensitivity. My research task was to develop a cost-effective way to create SERS substrates out of paper that can successfully retain drops of any molecule in aqueous form into a single area using wax as my barrier and that it could give a strong signal. I will demonstrate how I was able to imprint my wax molds on to office paper and then the process of adding gold nanoparticles to help enhance the readings of sample molecules.

¹University of Dayton's Physics Summer Research Experience

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