Abstract Submitted
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Nanoscale Surface Modification of Layered Materials[1] AARON O'SHEA, University of Northern Iowa, Department of Physics, KAYLA BOYLE COLLABORATION[2], DR. TIM KIDD COLLABORATION[3], DR LAURA STRAUSS COLLABORATION[4] — A scanning electron microscope can magnify a sample many times greater than a standard microscope, down to nanoscale dimensions. It can also be used to form patterns on the surfaces of certain materials, a technique used to create microchips. We have developed a technique that simplifies and expedites this process using an unmodified scanning electron microscope. Using this technique, we are able to alter the surface chemistry in a controlled pattern on a special class of materials called transition metal dichalcogenides. These materials have many useful applications: industrial lubricants; high strength nanocomposites; advanced solar cells; and next generation electronics. Altering the surface chemistry of these materials at the nanoscale results in unusual quantum behavior, which is useful in nanotechnology.

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