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Manganese Doping in Lead Sulfide Nanowires[1] KAITLYN YOHA, Duquesne University, DONG YU, CHRISTOPHER MILLER, University of California, Davis — Lead sulfide nanowires were synthesized using a Vapor-Liquid-Solid method, and a similar procedure with the addition of a manganese doping agent was used to potentially fabricate Mn doped PbS wires. A reaction between $PbCl_2$ and sulfur under nitrogen gas at 635 °C produced PbS nanowires and and identical synthesis with the addition of the doping agent $MnCl_2$ at a variable temperature between 645 °C and 665 °C was used to dope the wires. Various growth formations were fabricated and examined. The wires were analyzed by an X-ray diffractometer, and an electron paramagnetic resonance spectroscopy was performed to determine if the wires were doped with manganese. Once characterized, these wires may have applications in spintronics and solar cells.

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