

Abstract Submitted
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Percolation Threshold of Sputtered Thin Films JORDYN REDMOND, Weber State University — Percolation threshold for a material is the point at which an insulating material transitions to a conductive material, usually within several to tens of nanometers. Results from this research could be helpful in optimizing electronic devices, as this threshold marks the physical limitation for how thin electronic components made from these materials can be while still being conductive. After depositing various thin films of both aluminum and molybdenum via the Weber State University sputtering system, we measured the materials' resistance to determine the threshold thickness. I determined the percolation threshold for aluminum lies in the range between 5 and 7.5 nanometers, while molybdenum's percolation threshold lies in the range between 7.5 and 10 nanometers. During testing it was also determined that exposure to ambient air significantly skews the results due to native oxide growth on the films, so problem solving methods are discussed.

Jordyn Redmond
Weber State University

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