

Abstract Submitted
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Structure and Electrical Properties of Electrochemical Anodized Valve Metal WENBIN FAN, DAVID KIRKWOOD, Department of Materials Science and Engineering, University of Virginia, JIWEI LU, STUART WOLF, Department of Materials Science and Engineering, University of Virginia, STUART A. WOLF TEAM — Localized electrochemical anodization has been used to prepare metal tunnel junctions. The room-temperature I-V characteristics of anodized Vanadium, Tantalum and Titanium ultra small wires were studied. The nonlinear I-V curves indicate they behave as tunnel junctions. The resistance and tunneling characteristics are strongly determined by the details of anodization process. The High Resolution Transmission Electron Microscope (HRTEM) is used to explore the structure of the anodized Ti and V films and we found there are some crystalline grains on the bottom of the V film and in the center of Ti film. The grain size and the distance between two grains are changed by how the anodization process was terminated. Low temperature electrical properties of anodized films will be reported.

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