

Abstract Submitted  
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**Memristance in single-component metallic nanowires**<sup>1</sup> STEPHEN JOHNSON, PATRICK HUNLEY, ABHISHEK SUNDARARAJAN, DOUGLAS STRACHAN, Department of Physics & Astronomy, University of Kentucky — In this talk, we will discuss a new type of memristor - one whose state variable is its physical geometry. Using a single metallic material, we employ electromigration to change the resistance of metallic nanowires. The resistive switching is due to the creation/filling-in of voids in the nanowire as atoms are pushed back and forth by the electrical current. Exploiting electromigration in this manner, we repeatedly switch the resistance of single-component metallic nanowires between low and high states over many cycles. This work thus completes the array of fundamental passive circuit elements, now including the memristor, which can be fabricated from a single metallic material.

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