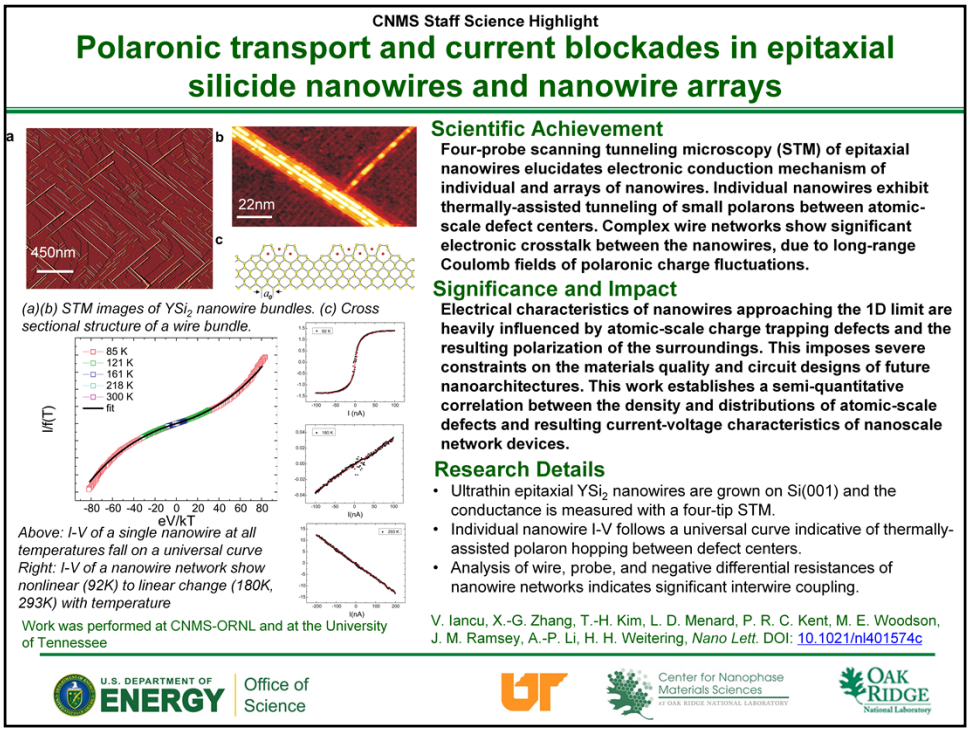

Highlight Narrative

This work probes quasi-1D electronic transport in nanowires and nanowire arrays by combining epitaxial synthesis, 4-probe STM measurements, phenomelogical modeling and first-principles electronic structure calculations. It establishes a semi-quantitative correlation between the density and distributions of atomic-scale defects and the I-V curves of nanoscale network devices. Establishing such semi-quantitative correlations between the density and distribution of atomic-scale defects and resulting current-voltage behavior is a critical first step towards designing novel nano architectures with desirable electrical properties.

Reference:

Polaronic Transport and Current Blockades in Epitaxial Silicide Nanowires and Nanowire Arrays

Violeta Iancu †, X.-G. Zhang ‡, Tae-Hwan Kim ‡, Laurent D. Menard §, P. R. C. Kent , Michael E. Woodson §, J. Michael Ramsey §, An-Ping Li ‡, and Hanno H. Weitering *

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