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Molecular wires: from metal-metal bonds to electron transport.

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Abstract Molecules containing chains of metal ions linked by direct covalent metal-metal bonds bear a striking resemblance to macroscopic wires, but just how real is this analogy? In this talk I will use a family of Extended metal Atom Chains (EMACs) to explore the relationship between structure, bonding and electron transport in metallic nanowires. In most cases the σ bonding framework dominates both the M-M bond strength and its ability to conduct electrons.

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Photograph by Xiaodong Hu