Abstract Submitted
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Electric Transport in MoSe molecular Nanowires LATHA VENKATARAMAN, YEON SUK HONG, PHILIP KIM — We present results from transport measurements on a new system of metallic one-dimensional (1D) conductors, molybdenum selenide (MoSe) molecular nanowires. These nanowires forms bundles of electrically identical MoSe chains and offer a system in which to investigate charge transport in weakly interacting multiple transport channels. Electrical transport has been measured on small bundles of nanowires whose diameter ranges from 2-16 nm. The measured two-terminal conductance of these wires shows power-law dependence with respect to temperature and bias voltage. The exponents governing the power law dependence are found to vary inversely with wire diameter, which determines the number of conducting channels in the bundles of wires. In addition, the estimated Luttinger Liquid interaction parameter is found to be smaller than that of carbon nanotubes implying stronger repulsive electron-electron interaction in this system.

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