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## **Electronic structure of 1D atomic chains: the Si(111)5x2-Au surface**

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Recently, 1D metallic systems formed on semiconductor surfaces have received considerable attention. Among a few systems under current debates, the Si(111)5x2-Au surface was found to exhibit 1D metallic bands and exotic properties such as Peierls distortion and Luttinger liquid behavior have been discussed. We reinvestigated this system by photoemission spectroscopy (PES) using synchrotron radiation and low energy electron diffraction (LEED). The possible temperature-induced changes of atomic and electronic structure are focused.

While no significant change in atomic structure was seen by LEED and core-level PES on cooling from room temperature to 70 K, a definite enhancement in spectral weight near zone boundary in ARPES spectra was found at 70 K. The implication of these unusual and unexpected findings is discussed.