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One-Dimensional Electronic Bands of Monatomic Cu Chains
PINGHENG ZHOU[1], International Center for Theoretical Physics, Trieste, Italy, PAOLO MORAS, Istituto di Struttura Materia, Consiglio Nazionale delle Ricerche, Trieste, Italy, LUISIA FERRARI, Istituto dei Sistemi Complessi, Consiglio Nazionale delle Ricerche, Roma, Italy, GUSTAV BIHLMAYER, STEFAN BLÜGEL, Institut für Festkörperforschung, Forschungszentrum Jülich, Germany, CARLO CARBONE, Istituto di Struttura Materia, Consiglio Nazionale delle Ricerche, Trieste, Italy — The electronic structure of an array of monatomic Cu chains grown on the Pt(997) surface has been examined by angle-resolved photoemission. The monatomic wires exhibit properties associated to 3d electron confinement in one-dimension. Along the wire direction the 3d bands states display a dispersive character, with periodicity in reciprocal space defined by the wire array geometry. These observations are compared and analyzed with ab initio calculations based the full potential linearized augmented plane wave method.

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