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**One-dimensional plasmons in atom wires on Si(111)-5x2-Au** T. NAGAO, C. LIU, S. YAGINUMA, T. NAKAYAMA, National Institute for Materials Science — One-dimensional (1D) collective excitation in atom wires self-assembled on the Si(111)-5x2-Au surface is investigated. Electron scattering spectroscopy using highly collimated slow electron beam has detected a characteristic sound wave-like excitation that exhibits strong anisotropy along the wires. This excitation occurs in dipole scattering regime and its lifetime drops as a function of momentum. From these features, the observed loss is assigned to a unique plasmon mode confined in the atom wires which are revealed to be strongly metallic.

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