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The rotational spectra of the complexes Ar-CuF, Ar-CuCl and Ar-CuBr have been measured between 5-22 GHz using a cavity pulsed jet Fourier transform microwave spectrometer. They were prepared by ablating Cu metal with a Nd:YAG laser (532 nm) and allowing the vapour to react with a suitable precursor contained as <1% in the Ar backing gas of the jet. The complexes are linear and rather rigid, with the Ar-Cu stretching frequency estimated as ~200 cm$^{-1}$. Ground state effective ($\tau_0$) and, where possible, substitution ($\tau_x$) and double substitution ($\tau_d$) geometries have been obtained. The Ar-Cu bonds are short (2.22-2.30 Å). Large changes in the Cu nuclear quadrupole coupling constants indicate extensive charge rearrangement on complex formation. *Ab initio* calculations at the MP2 level of theory predict an Ar-Cu bond energy in Ar-CuF of ~47 kJ mol$^{-1}$, along with a transfer of ~0.1 electron from Ar to Cu. The whole picture is consistent with weak Ar-Cu covalent bonding.