Bond Character at a Silicon/Copper Surface

by

C.H. Patterson, E.W. Plummer, and Richard P. Messmer

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University of Pennsylvania
Department of Physics
Philadelphia, PA

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The ionic and covalent character of bonding is considered for the Si(lll)-(5x5)Cu phase formed when one monolayer of copper is deposited on Si(lll)(7x7) and subsequently annealed to 600°C. Localized orbitals and ab initio calculations have been employed to evaluate total energies and types of bonding for Cu adsorbed in several different sites, including the structure proposed by Chambers et al (1) on the basis of their angle resolved Auger electron spectroscopy results. The relation between the bond character of this phase and its surface spectroscopic properties is discussed.


E.W. Plummer
Dept. of Physics
Univ. of Pennsylvania
209 S. 33rd St.
Philadelphia, PA 19104
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