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Positron Trapping at Quantum-Dot Like Particles on Metal and Semiconductor Surfaces[1] N. G. FAZLEEV, J. L. FRY, A. H. WEISS, University of Texas at Arlington — The results of studies of sputtered surfaces of the Fe-Cu alloy with quantum-dot like Cu nano-particles embedded in Fe and submonolayer films of Au and Pd deposited on Cu(100) and Si(100) using Positron-Annihilation-Induced Auger-Electron Spectroscopy are analyzed by performing quantum mechanical calculations of positron surface states and annihilation characteristics. Estimates of the positron binding energy, work function and annihilation characteristics performed for studied surfaces reveal their strong sensitivity to nano-particle coverage. Trapping of positrons at nano-particles on studied surfaces is determined from calculated positron surface state wave functions and comparison of theoretical core annihilation probabilities with experimental ones estimated from the measured Auger peak intensities.

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