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**Positron trapping at quantum-dot like Cu nano-particles embedded in Fe and submonolayer films of Au and Pd deposited on Cu(100) surface.** N. G. FAZLEEV, A. H. WEISS, Physics Department, University of Texas, Arlington — Recently clear evidence has been provided that positron spectroscopy can be used to characterize the properties of quantum-dot-like nano-particles embedded in host material even at dilute levels as a result of the preferential trapping of positrons in the nano-particles. The results of studies of sputtered surfaces of the Fe-Cu alloy with quantum-dot like Cu nano-particles embedded in the top atomic layers of Fe and submonolayer films of Au and Pd deposited on Cu(100) using Positron-Annihilation-Induced Auger-Electron Spectroscopy are analyzed by performing 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 sensitivity to nano-particle size and 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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