## Study of Atomic Clusters and Nanoparticles Using Positron Scattering and Annihilation Techniques\*

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This paper discusses the potential use of positron scattering and annihilation techniques to study clusters and nanoparticles, *in situ, in vacuo*. Possible studies include the use of high-resolution (e.g., 25 meV) scattering techniques to study cluster size and electronic and vibrational excitations [1]; the use of positron annihilation and positronium atom formation to probe electronic structure, study fragmentation, and form specific cations [2,3]; and the use of positron-induced Auger spectroscopy to study surface properties. Phenomena of interest include trapped-positron states in  $C_{60}$  and similar caged structures and the fragmentation of polycyclic aromatic molecules.

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