

AUTOLOCALIZED STATES
OF AN EXCESS ELECTRON IN AN IONIC CLUSTER

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S u m m a r y

A theory of electron affinity for an ionic cluster is proposed both in a quasiclassical approach and with quantization of a polarization electric field in a nanoparticle. The critical size of a cluster as for the formation of electron's autolocalized state and dependences of the energy and the radius of a polaron on cluster's size are obtained by the variational method. It has been found that the binding energy of an electron in the cluster depends on cluster's radius, but the radius of electron's autolocalization does not and equals the polaron radius in a corresponding infinite crystal. The bound state of an electron in the cluster is possible only if cluster's radius is more than the polaron radius.