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Metal Cluster Structures

Outline

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Abstract

Physical and chemical properties as melting point, reactivity or catalytic activity of metal clusters can vary strongly with cluster size. A precondition to understand this behavior is the knowledge of the cluster structure. In the first part of this lecture possible simple polyhedral structures deduced from hard sphere packing are qualitatively evaluated regarding a few stability criterions. Using simple interaction potentials, the size and potential dependence is discussed. In the second part a selection of experimental techniques to probe real cluster structures in gas phase is presented. Finally some examples for free cluster structures ranging from simple to more complex structural motifs from recent literature are discussed.