



Microcluster Physics

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Book Condition: New. Publisher/Verlag: Springer, Berlin | A lucid account of the fundamental physics of all types of microclusters, outlining the dynamics and static properties of this new phase of matter between a solid and a molecule. Since the book's first publication, the field of microclusters has experienced surprising developments, which are reviewed in this new edition: The determination of atomic structure, spontaneous alloying, super-shell, fission, fragmentation, evaporation, magnetism, fullerenes, nanotubes, atomic structure of large silicon clusters, superfluidity of a He cluster, water clusters in liquid, electron correlation and optimization of the geometry, and scattering. |

1. What are Microclusters?.- 1.1 Constituent Small Particles of Material.- 1.2 Division of the Materials.- 1.2.1 Fine Particles.- 1.2.2 Microclusters.- 1.2.3 Molecules.- 1.3 Shell Periodicity of Atomic Structure.- 1.3.1 Fundamental Polyhedra.- 1.3.2 Magic Numbers due to Atomic Shells.- 2. Dynamics of Atomic Structure.- 2.1 Solid-like, Liquid-like, or Fluctuating?.- 2.1.1 Naive Questions.- 2.1.2 Atomic Structure of Adsorbed Microclusters.- 2.2 Coexistence of Solid-like and Liquid-like Phases.- 2.3 Fluctuating States and Permutation Isomers.- 2.3.1 The Case of $N = 6$.- 2.3.2 The Case of $N = 7$.- 2.3.3 Fluctuation in Large Clusters.- 2.4 Monte-Carlo Simulations.- 2.4.1 Lennard-Jones Clusters Constrained to Spherical Cavities.- 2.4.2 Transition-Metal Clusters of N...



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