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Editorial

Silicon clusters: Problems, challenges and perspectives

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The chemistry of silicon has shown dramatic expansion in recent years [1]. This is easily explained by the importance of this chemical element in fields with high-level potential technological applications [2]. Atomic clusters form a link between molecules and solids with novel properties found neither in molecules nor in solids. As silicon is the most important semiconducting element for the microelectronics industry, device fabrication, and atomic scale engineering, the research on the subject grew dramatically over the last five-ten years. There is currently a strong interest in the prospect of producing new materials consisting of small atomic clusters, and in particular silicon clusters. Such cluster-assembled materials may vary significantly from their crystalline counterparts, with different (and more useful) mechanical, electronic, optical and other properties. In this volume we have collected a number of important studies on structural, electronic, optical, and other fundamental properties of silicon clusters. The present collection includes pure and doped silicon clusters and nanoclusters, as well as metal embedded (or adsorbed) silicon clusters, including also the inverse process of doping metal clusters by silicon, in view of the current interest for studying the metal-semiconductor interface at **atomic** or **nano** level. All contributors are eminent specialists in their respective fields. The material of this Special Issue will be of interest not only to silicon clusters specialists, but also to more general scientific audiences active in physical chemistry, chemical physics, materials science, nanoscience and nanotechnology related research fields.

References

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[2] V. Kumar, *Nanosilicon*, Elsevier, London, 2007.