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Sommario/riassunto	Silicon has been proven to be remarkably resilient as a commercial electronic material. The microelectronics industry has harnessed nanotechnology to continually push the performance limits of silicon devices and integrated circuits. Rather than shrinking its market share, silicon is displacing “competitor” semiconductors in domains such as high-frequency electronics and integrated photonics. There are strong business drivers underlying these trends; however, an important contribution is also being made by research groups worldwide, who are developing new configurations, designs, and applications of silicon-based nanoscale and nanostructured materials. This Special Issue features a selection of papers which illustrate recent advances in the preparation of chemically or physically engineered silicon-based nanostructures and their application in electronic, photonic, and mechanical systems.