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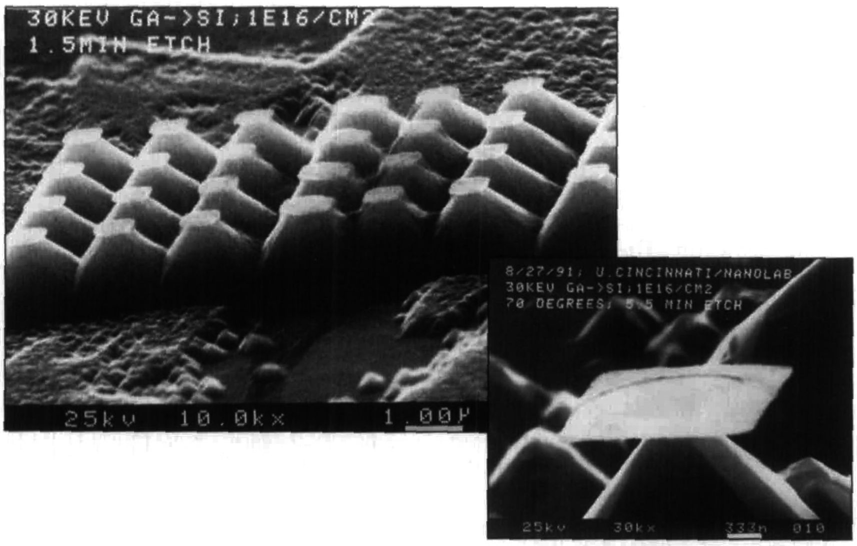

We already know that silicon has one thing in common with water ice. That is, unlike most solids, they both contract on melting, thus allowing applied pressure to facilitate such recreational activities as ice skating. Another form of ice that also facilitates recreation is the ice cube, molded a few at a time into shapes dictated by deep-dimpled freezer trays. A.J. Steckl, H.C. Mogul, and S. Mogren (*Mater. Res. Soc. Symp. Proc.* **256** [1992] p. 123 and *Appl. Phys. Lett.* **60** [1992] p. 1833) have managed to make silicon mimic this property, too, as the array of designer-shaped silicon "cubes" in this month's EDITOR'S CHOICE illustrates. Their process was rather more complex than the freezer tray. After a finely focused ion beam implants $1 \times 10^{16}/cm^2$ of 30 kilovolt gallium atoms only into the little square patches where they want the silicon "cubes" to form on a (100) silicon crystal face, they subject the area to anisotropic etching by a potassium hydroxide/isopropyl alcohol solution that attacks (111) planes less aggressively than others. This leaves truncated pyramids of inclined (111) planes wearing thin mortar-board-like caps—caps formed by the ion-implanted layer resisting the etchant's attack while attempting to protect the underlying substrate and being undercut in the process. The authors note that this process can routinely produce silicon nanostructures on the order of tens of nanometers thick where studies of quantum confinement phenomena might be performed, for recreational purposes of course.

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