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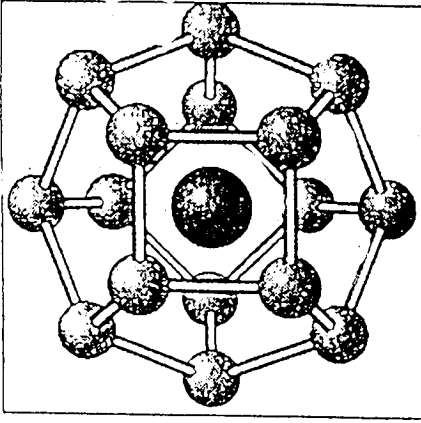
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# SCIENCE & TECHNOLOGY

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A model of the kind of silicon fullerene achieved in a recent computer simulation.

## Simulation uses silicon in fullerene

A group at the Institute for Materials Research of Tohoku University has discovered that it is possible to form a ball-shaped structure composed of silicon atoms. The finding, achieved through simulations on a supercomputer, is expected to lead to the development of a new silicon material for electronic parts.

The team, led by Professor Yoshiyuki Kawazoe and Visiting Professor Vijay Kumar, discovered that a ball-shaped structure with an iron or ruthenium atom at the center could be created with 14-16 silicon atoms around the core.

There were nine possible ball-shaped patterns, including a diamond and an octagon. The findings were published in the July 23 edition of the U.S. journal *Physical Review Letters*.

The team will try to form an actual ball-shaped structure, called buckminsterfullerene, or fullerene, in about a year. Fullerenes are expected to be used to produce semiconductors capable of emitting blue or purple laser light, in addition to ultra-highly integrated chips.

"Fine processing technology for silicon is much more advanced than that for carbon, and silicon fullerenes may become a major electronic material in the future," Kawazoe said.

Research on commercialization of carbon fullerenes is already being conducted in the field of nanotechnology.