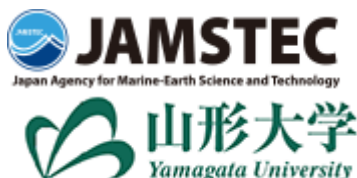

Press Releases



June 28, 2013
JAMSTEC
Yamagata University

Formation of nanoparticles by rubbing solid fullerene between fingertips **—Discovery of a unique solid property of fullerene (C₆₀)—**

1. Overview

While carrying out research on physical and chemical processes in the high-temperature high-pressure environments found in deep sea hydrothermal vents, Shigeru Deguchi at the Japan Agency for Marine-Earth Science and Technology (JAMSTEC; President, Asahiko Taira) and his colleagues have discovered that nanoparticles with diameters of 20 nm or less can be generated simply by rubbing fullerene (C₆₀) solids between fingertips. This new discovery shows that the energy required to comminute the C₆₀ solid into nanoparticles is unprecedentedly smaller compared with other materials.

These findings were reported in the June 28 issue of *Scientific Reports*.

Title: Non-engineered nanoparticles of C₆₀

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URL: <<http://dx.doi.org/10.1038/srep02094>>

References related to these findings

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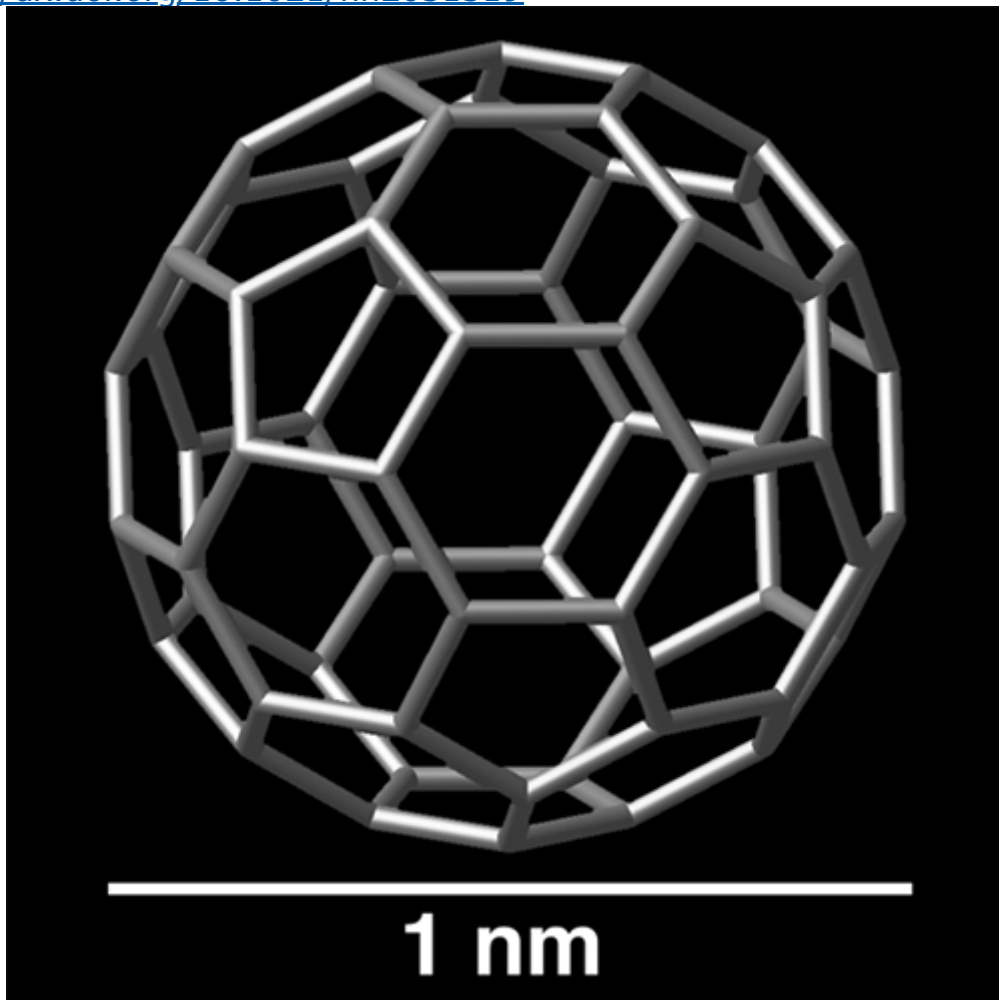


Figure 1: Fullerene (C_{60}).

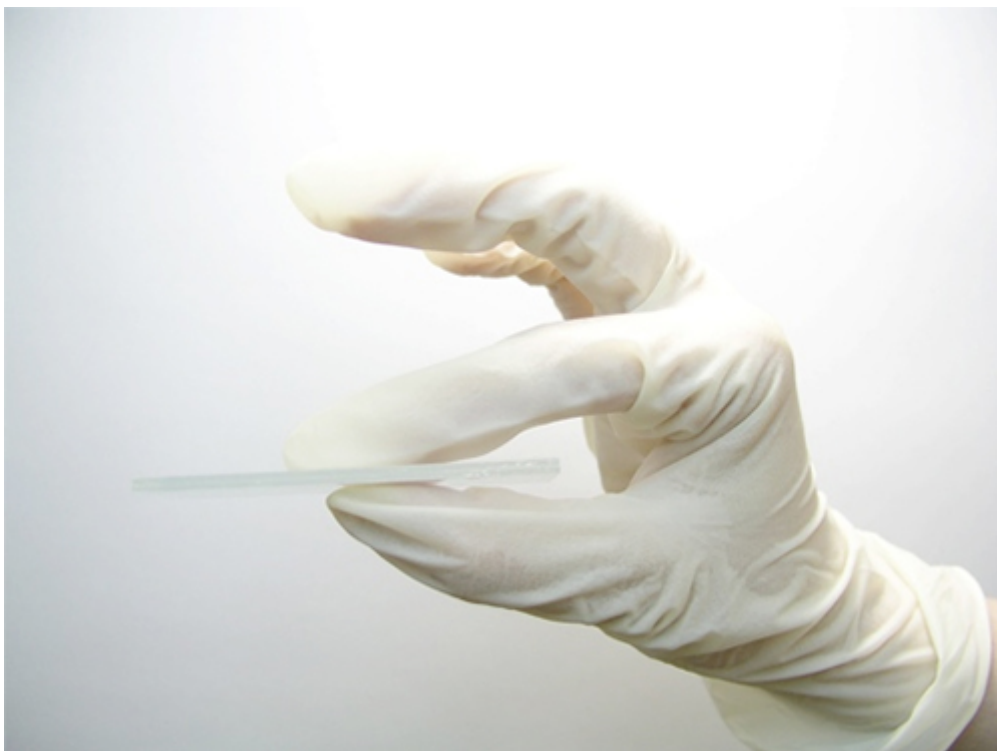


Figure 2: Experimental Procedure.

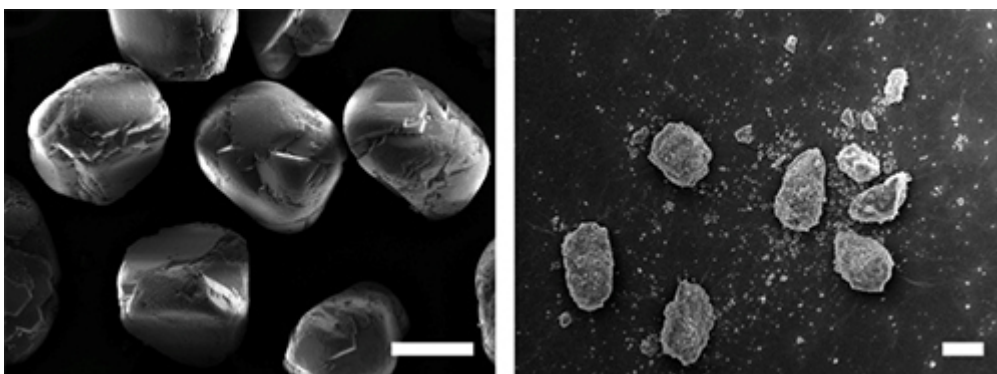


Figure 3: Electron microscope images of C₆₀ solid powder (left, scale bar = 0.1 mm) and ground C₆₀ (right, scale bar = 0.01 mm).

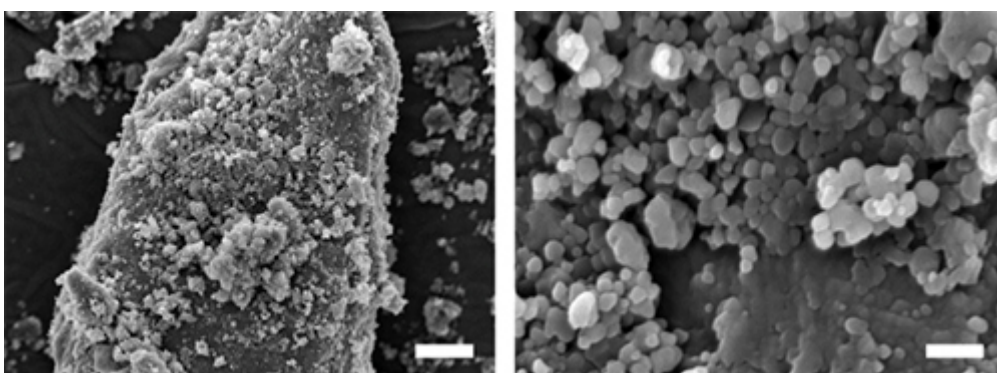


Figure 4: Magnified electron microscope images of ground C₆₀. Scale bars indicate 2 μm (left) and 200 nm (right).

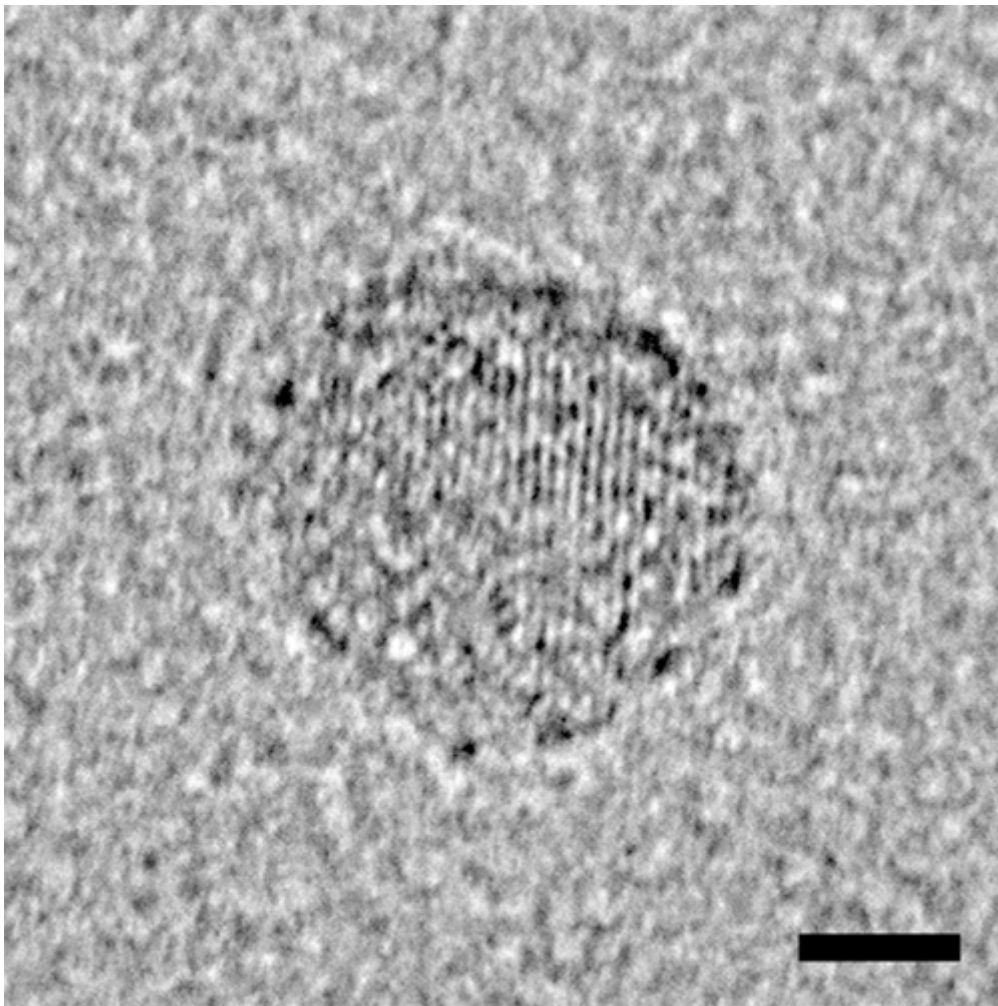


Figure 5: Nanoparticles, 14 nm in diameter, which had formed in ground C_{60} . The scale bar indicates 5 nm.

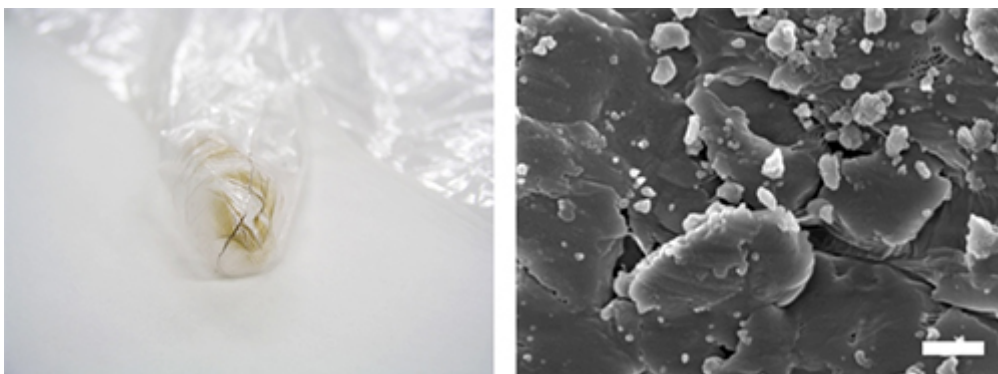


Figure 6: C_{60} crushed without the use of glass plates (left, brown substance adhered to a glove) and its electron microscope image (right, scale bar indicates 500 nm).



Figure 7: C₆₀ adhered to the mouth of a reagent bottle (left) and its electron microscope image (right, scale bar indicates 500 nm).

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