

Platonic C-atom polyhedra

Carbon atoms can join edge to edge as equilateral triangular panels to form three of the Platonic solids. Four C-atoms form a regular tetrahedron which is the crystal forming unit of diamond. Eight C-atoms form a regular octahedron. Twenty C-atoms form a regular icosahedron which is one of the fullerenes. The octahedral and icosahedral assemblies are quasicrystalline—the octahedral units of which the atoms are composed have more than one orientation.

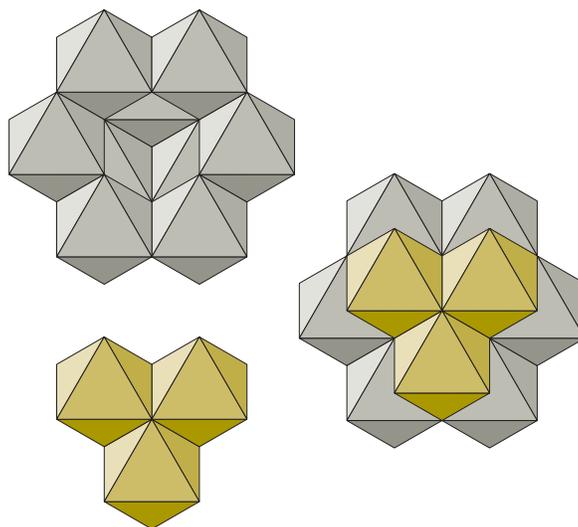
Each of the platonic polyhedra is shown below. Each of the C-atoms is depicted as a triplet of identical regular octahedra. Each octahedron represents a He-atom which is in

turn composed of two deuterium atoms each being a triplet of three simple octahedra.

References

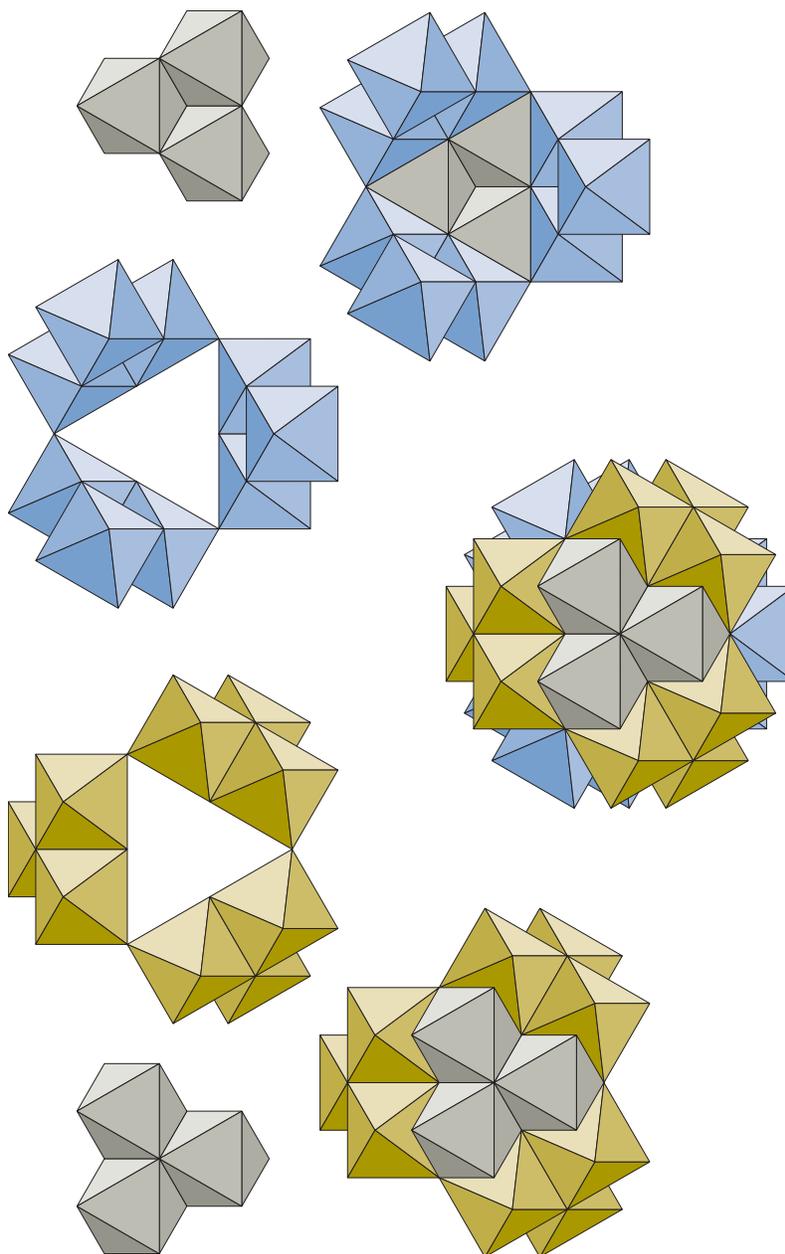
This work is based on the discovery that the periodicity of the atomic elements is the same as the periodicity of recurring form is which simple octahedra combine edge to edge to form compound octahedra. The book *Octahedron*, 1st Edition by Robert William Whitby describes the discovery and its implications. It can be downloaded from the website—

<http://homepage.mac.com/whitby/>
<http://web.me.com/whitby/Octahedron/Welcome.html>
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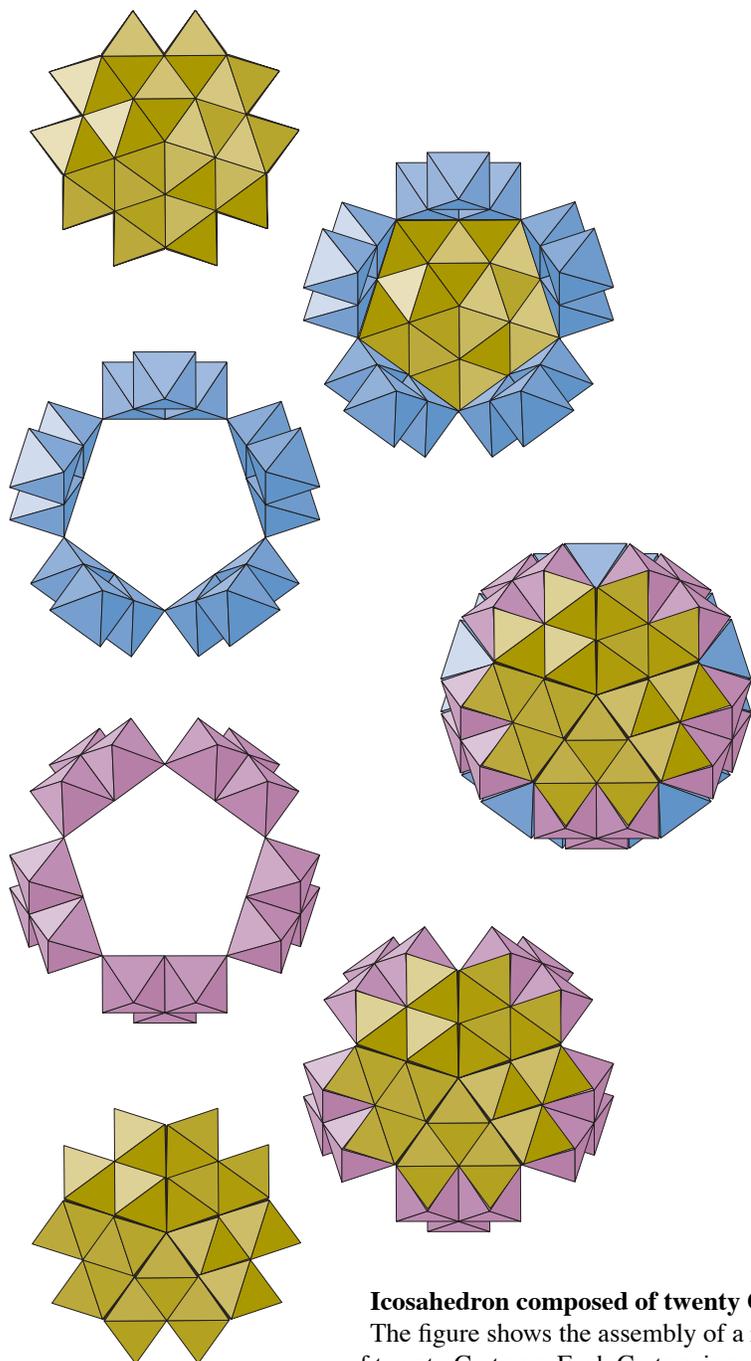
Tetrahedron composed of four C-atoms.

The figure shows the assembly of a regular tetrahedron consisting of four C-atoms. Each C-atom is a panel which provides one of the four faces of the assembly. The assembled unit is the crystal forming unit of diamond.



Octahedron composed of eight C-atoms

The figure depicts the assembly of a regular octahedron by eight C-atoms. Each atom is a panel which provides one of the regular triangular faces of the assembly. The column on the left shows the C-atoms in the same orientations they have in the final assembly. The middle column shows two subassemblies of four C-atoms each. The right most view shows the completed assembly.



Icosahedron composed of twenty C-atoms

The figure shows the assembly of a regular icosahedron composed of twenty C-atoms. Each C-atom is a regular triangular panel of the finished assembly. The twenty C-atoms are shown as four groups of five in the left column of the figure. The middle column shows two subassemblies composed of ten C-atoms each. The two subassemblies are identical but are viewed from opposite directions. The completed assembly is shown on the right.

4 Platonic C-atom polyhedra