

Icosahedral assembly of graphite CFUs with C-strands

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24 September 2004—modified on 5 December 2005 to correct an error in the placement of the orange colored equatorial graphite units in the completed assembly shown in Figur2.

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<http://web.me.com/whitby/Octahedron/Welcome.html>

References

1. Octahedron1stEd.pdf

<http://homepage.mac.com/whitby/FileSharing103.html>

2. Icosahedral assembly of graphite CFUs with O-atoms by Robert William Whitby

<http://homepage.mac.com/whitby/Quasicrystals/FileSharing171.html>

Introduction

Reference 2 shows how twenty graphite CFUs combine to form the icosahedral assembly known as the C_{60} -fullerene. The document also shows how an O-atom can join to a C-atom of a CFU of the icosahedral assembly. This document shows how a strand of C-atoms can join to a C-atom of a CFU of the same icosahedral assembly. Together with Reference 2, this document shows, by extension, how a C_{60} -fullerene can join with an atom of a water molecule, a lipid, a lone peptide, or a protein.

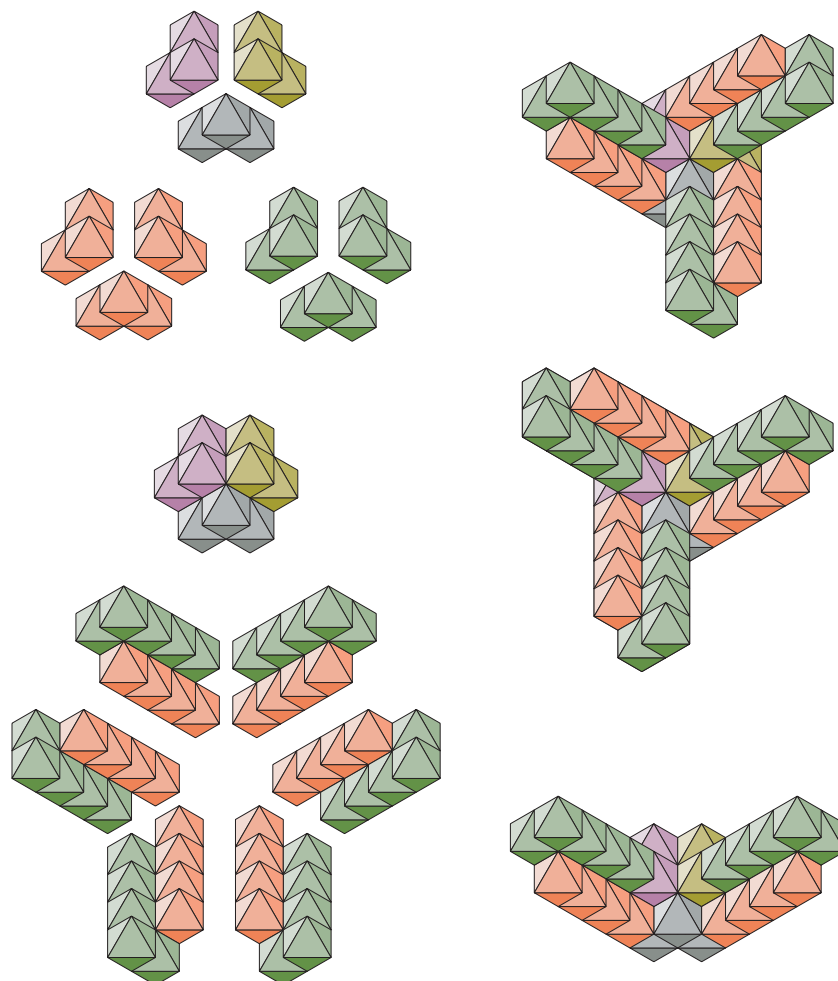


Fig. 1 Graphite CFU with cleftly joined strands of C-atoms.

Three groups of three C-atoms each are shown in the upper left of the figure. The groups are identical except for the coloration of their He-octas.

In the middle left, the violet, yellow, and gray C-atoms are joined as a graphite CFU.

In the bottom left, red and green C-atoms are joined in six strands of four C-atoms each. In each strand, red atom alternates with green atom.

In the upper right, a strand has been cleftly joined to each of the C-atoms of a graphite CFU to form an assembly which has threefold symmetry.

In the middle right, a different set of three C-strands has been joined to the CFU to form a second assembly of threefold symmetry.

In the bottom right, two C-atom strands have been joined to a CFU to form an assembly with twofold symmetry.

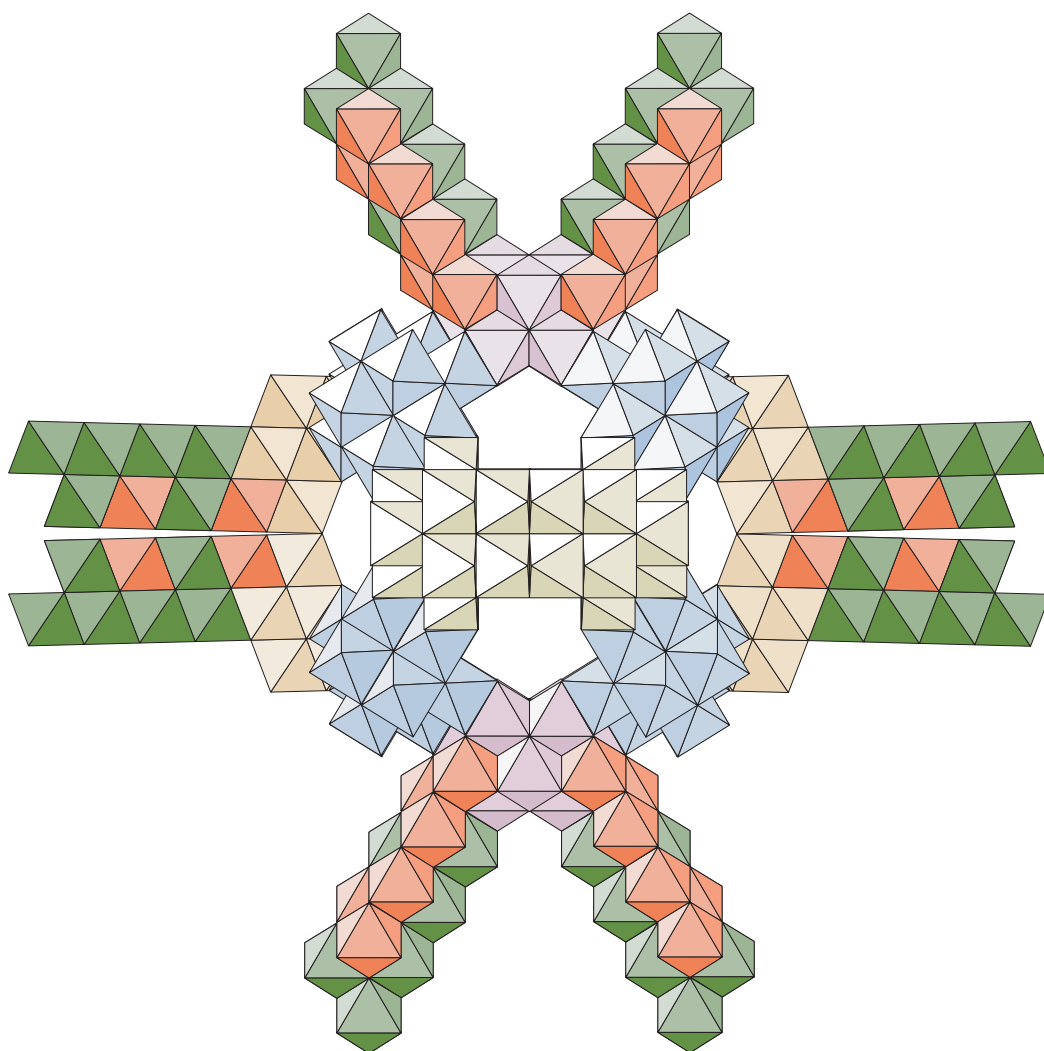


Fig. 2 Icosahedral assembly of graphite CFUs with eight cleftly joined C-strands

A strand of four C-atoms has been cleftly joined to each of two C-atoms of the upper violet colored graphite CFU. The two strands with the CFU have two fold symmetry. The same is true for the lower violet colored CFU. Also, a strand of four C-atoms has been cleftly joined to each of the four nearer orange colored equatorial CFUs.

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