# Dissection of rhombicosidodecahedron, truncated icosahedron and truncated dodecahedron to rhombic solids

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The results from [1] show that it is possible to dissect rhombicosidodecahedron, truncated icosahedron and truncated dodecahedron to a cube. We show that these solids can be decomposed to three rhombic solids. The first "rhombic" solid is obtained by addition of 30 halves of rhombic dodecahedron of the second kind to a rhombic 210-hedron. The second is a 270-hedron and the third is a 420-hedron. Since rhombic solids consists of prolate and oblate rhombohedra and a half of rhombic dodecahedron consists of two halves of both rhombohedra [3,4], the "rhombic" solid can be dissected to a cube. Observe that the first rhombic solid has a deficit at pentad axes and surplus at triad axes, the second has surplus at pentad axes and the third has deficit at triad axes. See [5] for more explanation.
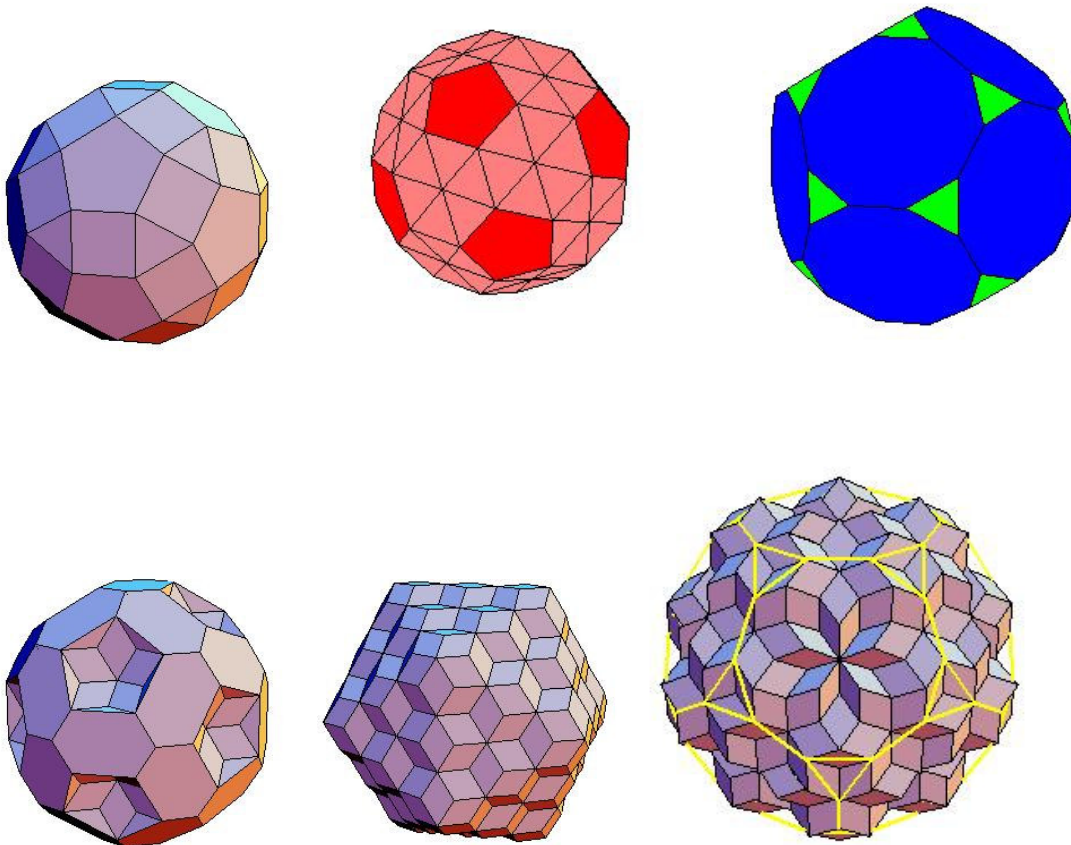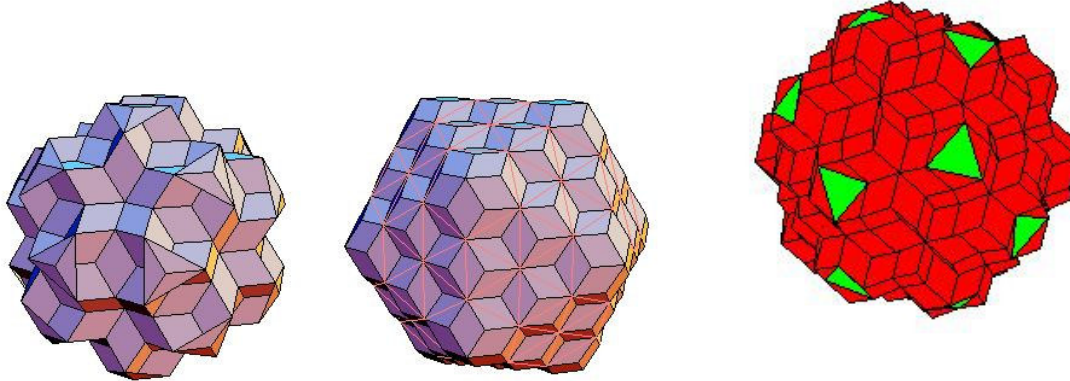
References

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[2] G. N. Frederickson, Dissections: Plane & Fancy, Cambridge U. Press, 1997.

[3] I. Hafner, T. Zitko, A dissection of two rhombic dodecahedra of the 2. kind to a cube.

[4] I. Hafner, T. Zitko, A dissection of quarter of rhombic dodecahedron of the second kind to a cube.

[5] I. Hafner, Hinged dissection of a "rhombic" solid to truncated icosidodecahedron.