[MS19-P05] Geometries of Hexanuclear Rhenium Clusters

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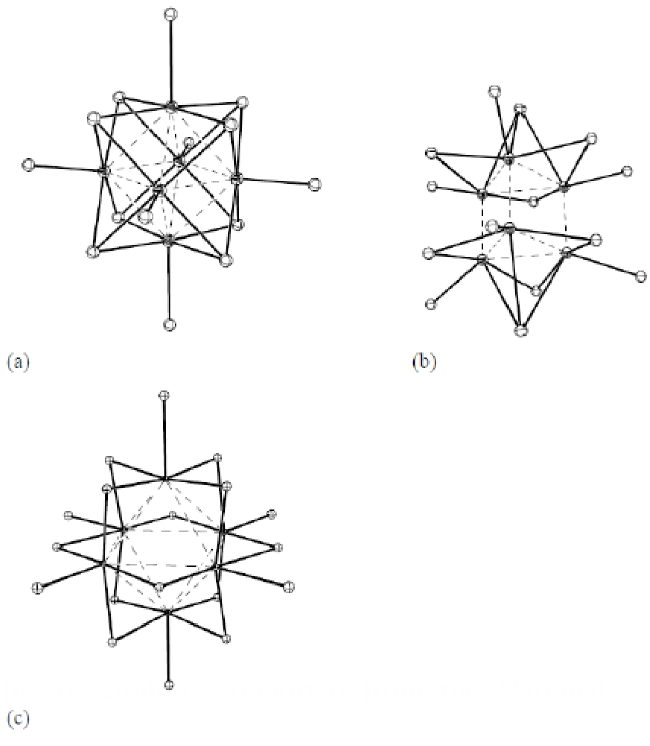
So far, the hexanuclear rhenium clusters have been known to adopt two kinds of geometry: one described as rhenium octahedron included in a cube built up from eight bridging μ3-ligands and the second one, where rhenium atoms are arranged in a trigonal prism bridged by two μ3- and six μ-ligands (Fig. 1a,b). In the first case the core of octahedral rhenium clusters have $[Re_6(_{\mu3}\text{-}Q)_{8-n}(_{\mu3}\text{-}X)_{6+n}]^{n-4}$ stoichiometry, where Q = S, Se, Te; X = Cl, Br, while the second type of geometry is observed for clusters of the formula $[Re_6(\mu\text{-}Br)_6(_{\mu3\text{-}}Br)_2Br_6]^-$ [1]. Our recent research proved that octahedral rhenium clusters can also adopt another kind of geometry, where rhenium atoms are bridged by μ-ligands only (Fig. 1c).
Fig. 1. Three kinds of geometry observed in hexanuclear rhenium clusters.



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[1] Gray, T. G. (2003). Coord. Chem. Rev. 243, 213-235.

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