

# The U<sub>2</sub> molecule has a multiple bond

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## Abstract

Ab initio quantum chemistry is a mature science that allows the study of molecular systems containing any of the atoms in the periodic system. Actinide compounds can be treated routinely, provided that electron correlation and relativistic effects are taken into account properly. The recently discovered unconventional bond in the U<sub>2</sub> system will be presented [1]. By understanding the bond between two uranium atoms, we have completed the knowledge about the chemical bond between two equivalent atoms in the all periodic table. The U<sub>2</sub> unit can form the framework for a yet unexplored diuranium chemistry. Species like U<sub>2</sub>Cl<sub>8</sub><sup>2-</sup>, and diuranium formates, are currently under investigation [2].

[1] L. Gagliardi and B.O. Roos *Nature* **433** 848-851 (2005)

[2] B.O. Roos and L. Gagliardi *J. Am. Chem. Soc.* submitted (2005)