第244回触媒化学研究センター談話会

演　題：**Gold nanoclusters as oxidation catalysts**

講演者：**Prof. Hannu Häkkinen**

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日　時：2008年11月4日(火)15:00-16:30

会　場：北海道大学創成科学研究棟
5 階大会議室 05-213 号室

要　旨：Since 1980's the catalytic activity of nanometer-sized gold clusters has been a very active research area [1,2]. In this talk I will review current theoretical understanding on the reasons why small gold clusters are effective oxidation catalysts at low temperatures [3-5]. I will also discuss ideas on how to use chemically protected, but activated gold cluster "superatoms" [6] as precisely controlled nanocatalysts for the simple CO oxidation model reaction.

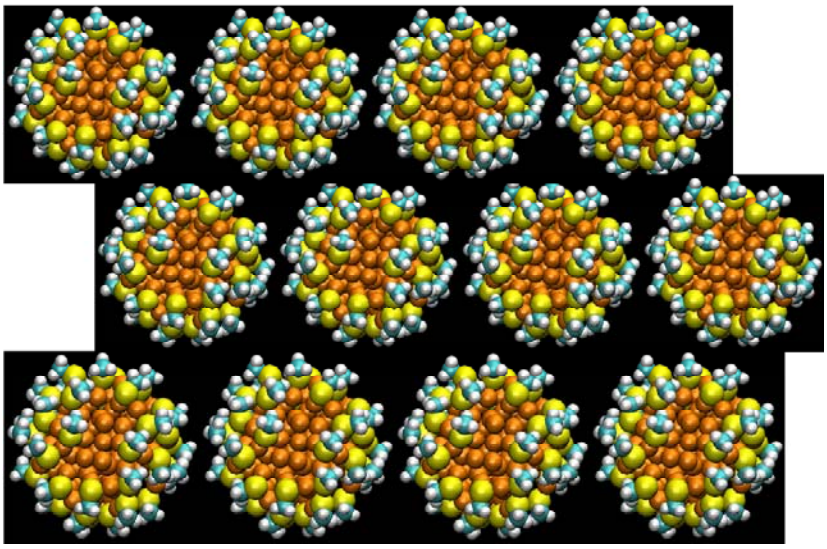

Figure: A schematic presentation of an assembly of strictly mono-dispersed, partially methylthiolate-protected 2 nm gold clusters. The area of exposed, metallic gold core could be used as template for oxidation reactions.

References

[1] M. Haruta et al, *Chem. Lett.* **2**, 405 (1987). [2] A. Herzing et al., *Science* **321**, 1331 (2008). [3] A. Sanchez et al, *J. Phys. Chem. A* **103**, 9573 (1999). [4] H. Häkkinen et al., *Angew. Chem. Int. Ed.* **42**, 1297 (2003). [5] B. Yoon et al., *Science* **307**, 403 (2005). [6] M. Walter et al., *Proc. Natl. Acad. Sci. USA* **105**, 9157 (2008).

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