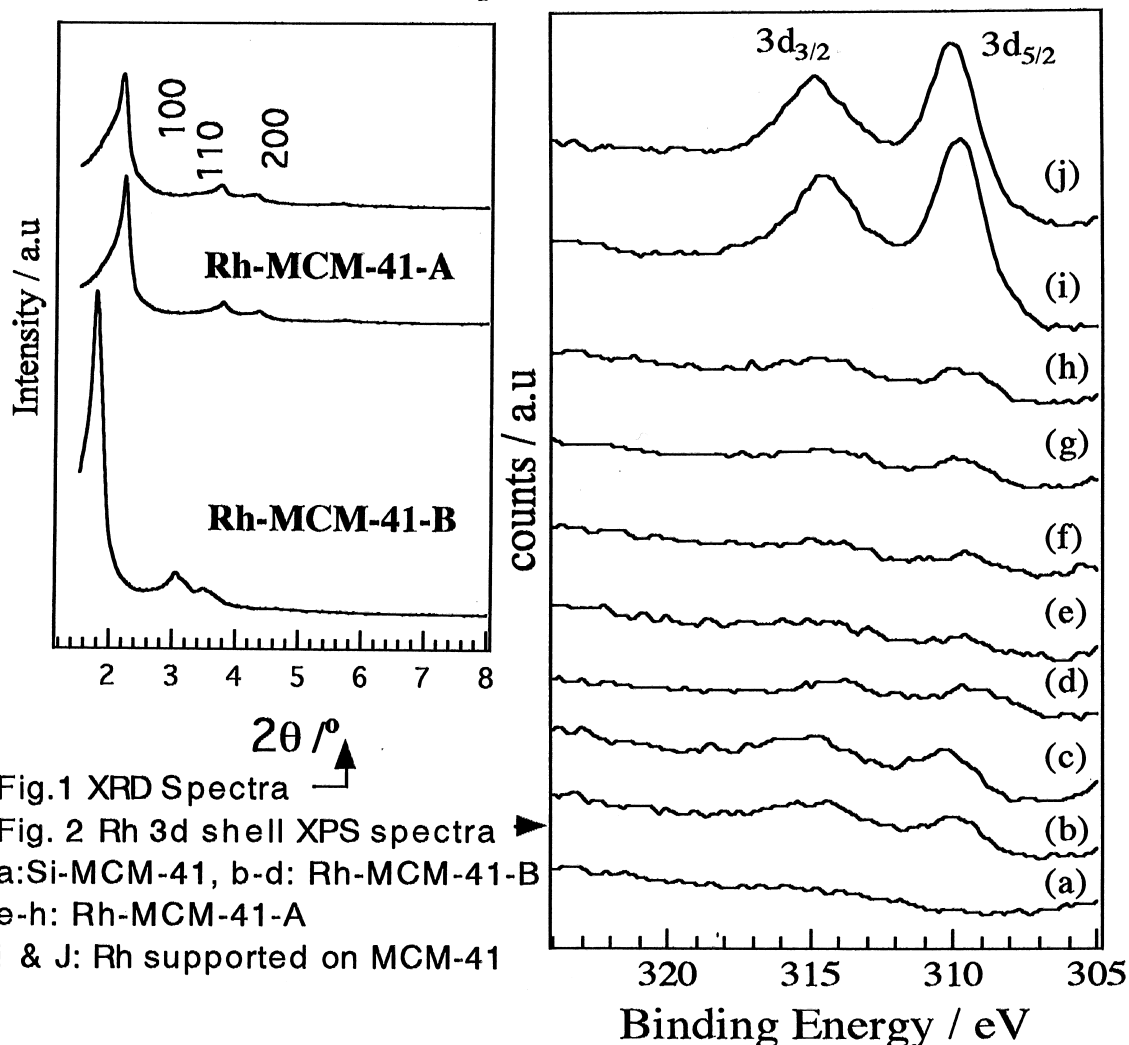


## XRD and XPS Characterization of Rh-MCM-41 Molecular Sieves.

(東大院理) Mulukutla Ravichandra S. · 朝倉 清高 · 岩澤 康裕  
(Department of Chemistry, The University of Tokyo)  
Mulukutla, Ravichandra S.; Asakura, Kiyotaka; Iwasawa, Yasuhiro.

We have prepared rhodium oxide nanoparticles of  $< 3$  or  $6$  nm in diameter in the pore channels (Rh-MCM-41-B) or in the bulk of mesoporous MCM-41 (Rh-MCM-41-A) respectively<sup>[1,2]</sup>.  $\text{RhCl}_3 \cdot 3\text{H}_2\text{O}$  was added to the silicate surfactant gel prior to the hydrothermal synthesis, the variation in the temperature and the time during the aging has resulted assorted sizes of rhodium oxides with different symmetries viz, hexagonal or orthorhombic. XRD characterization of Rh-MCM-41-A and Rh-MCM-41-B were shown in Fig. 1, revealed that Rh-MCM-41-B has larger unitcell. Fig. 2 is the XPS spectra of Rh 3d shell of the Rh-containing MCM-41. The ratio of Si/Rh at the external surface of MCM-41 was calculated and location of the rhodium oxides in the MCM-41 were understood in various samples.



[1] R. S. Mulukutla, K. Asakura, S. Namba and Y. Iwasawa,  
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[2] R. S. Mulukutla, K. Asakura, T. Kogure, S. Namba and Y. Iwasawa,  
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