High-pressure STM studies of oxidation catalysis

Bobaru, Ş.C.

List of publications

This thesis is partly based on the following articles:

1. *Looking at heterogeneous catalysis at atmospheric pressure using tunnel vision*
   B.L.M. Hendriksen, **S.C. Bobaru**, J.W.M. Frenken, *Topics in Catalysis* 36 (2005) 43

2. *Bistability and oscillations in CO oxidation studied with Scanning Tunnelling Microscopy inside a reactor*
   B.L.M. Hendriksen, **S.C. Bobaru**, J.W.M. Frenken, *Catalysis Today* 105 (2005) 234

3. *Oscillatory CO oxidation on Pd(100) studied with in situ Scanning Tunnelling Microscopy*
   B.L.M. Hendriksen, **S.C. Bobaru**, J.W.M. Frenken, *Surface Science* 552 (2004) 229

4. *Structure and reactivity of Surface Oxides on Pt(110) during catalytic CO Oxidation*
   M. D. Ackermann, T. M. Pedersen, B. L. M. Hendriksen, O. Robach, **S. C. Bobaru**, I. Popa, C. Quiros, H. Kim, B. Hammer, S. Ferrer, and J. W. M. Frenken , *Phys. Rev. Lett*. **95** (2005) 255505

5. *New role for steps in catalysis*
   B. L. M. Hendriksen, M. D. Ackermann, **S. C. Bobaru,** I. Popa, S. Ferrer and J.W.M. Frenken, submitted to *Nature*

6. *CO oxidation on Pt(111) at atmospheric pressure*
   S. C. Bobaru, B. L. M. Hendriksen and J. W. M. Frenken,in preparation for submission to *Surface Science*

7. *CO oxidation on vicinal palladium surfaces at atmospheric pressure*
   S. C. Bobaru, B. L. M. Hendriksen J. Gustafson, E. Lundgren and J. W. M. Frenken, in preparation for submission to *Journal of Catalysis*

8. *Atmospheric CO oxidation on Pt(100)*
   S. C. Bobaru, C.T. Herschleb and J. W. M. Frenken, in preparation for submission to *Chemical Physical Letters*

Curriculum Vitae

S. C. Bobaru was born in Drăgoeşti, Vâlcea (România) on 2 July 1975. After receiving her Bachelor's degree in Physics-Chemistry from West University, Timişoara, România in 1998, she pursued her studies at the same university and obtained her Master's degree in Physics in 2000, specializing in physics of crystalline materials. The research for her master thesis entitled "*Evaluation of Image Quality of Electronic Portal Imagining for Megavoltage Photon Beams"* was done at Ørsted Laboratory, University of Copenhagen, Denmark during a six months scholarship. As a PhD student she first joined the group of Prof. Dr. Simion Simon at Department of Condensed Matter, Faculty of Physics, "Babeş-Bolyai"University, Cluj-Napoca, Romania on 2001, on a project entitled "*The use of spectroscopic techniques in medicine"*. From May 2002 to October 2006, she has worked as a PhD student in the Interface Physics Group of Prof. J.W.M. Frenken, at the Kamerlingh Onnes Laboratory, Leiden University, The Netherlands. Her research in this period on the relationship between the structure and the reactivity of a catalyst has formed the basis for the present thesis on "*High-pressure STM studies of oxidation catalysis"*.