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## The interaction of water and hydrogen with nickel surfaces

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### Citation

Shan, J. (2009, November 11). *The interaction of water and hydrogen with nickel surfaces*. Retrieved from <https://hdl.handle.net/1887/14365>

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## List of publications

This thesis is based on the following publications:

### Chapter 3

Junjun Shan, Jacques F. M. Aarts, Aart W. Kleyn, and Ludo B. F. Juurlink  
*The interaction of water with Ni(111) and H/Ni(111) studied by TPD and HREELS*  
*Phys. Chem. Chem. Phys.*, 2008, **10**, 2227.

### Chapter 4

Junjun Shan, Jacques F. M. Aarts, Aart W. Kleyn, and Ludo B. F. Juurlink  
*Co-adsorption of water and hydrogen on Ni(111)*  
*Phys. Chem. Chem. Phys.*, 2008, **10**, 4994.

### Chapter 5

Junjun Shan, Aart W. Kleyn, and Ludo B. F. Juurlink  
*Identification of Hydroxyl on Ni(111)*  
*Chemphyschem.*, 2009, **10**, 275.

### Chapter 6

Junjun Shan, Aart W. Kleyn, and Ludo B. F. Juurlink  
*Adsorption of molecular hydrogen on an ultrathin layer of Ni(111) hydride*  
*Chem. Phys. Lett.*, 2009, **474**, 107.

## Chapter 7

Junjun Shan, Aart W. Kleyn, and Ludo B. F. Juurlink

*On the formation and decomposition of a thin NiH<sub>x</sub> layer on Ni(111)*

To be submitted.

In addition, the author has participated in the following articles:

Roberto Macovez, Michael R. C. Hunt, Junjun Shan, Andrea Goldoni, Thomas Pichler, Maddalena Pedio, Paolo Moras, Carla Castellarin-Cudia, Joachim Schiessling, Luc Venema, and Petra Rudolf

*Metal-to-insulator transition in thin-film polymeric AC<sub>60</sub>*

*New J. Phys.*, 2009, **11**, 023035.

Christine Hann, Junjun Shan, Irene M. N. Groot, Aart W. Kleyn, and Ludo B. F. Juurlink

*Selective poisoning of active sites for D<sub>2</sub> dissociation on Pt*

To be submitted

Junjun Shan, Christine Hann, Yin Liu, Otto T. Berg, and Ludo B. F. Juurlink

*Employing a cylindrical single crystal to study step effects in gas-surface dynamics*

*In preparation*

## Curriculum Vitae

Junjun Shan was born in the city of Hangzhou, China, on September 21, 1979. After obtaining his bachelor degree and master degree in physics in 2002 and 2004, he decided to continue his education in chemistry. In September 2004, he started his chemistry study as a PhD student at the Leiden Institute of Chemistry under the supervision of Prof. Dr. Aart W. Kleyn and Dr. Ludo B. F. Juurlink in the Catalysis and Surface Chemistry group. This group is currently headed by Prof. Dr. Marc T. M. Koper. His studies focused the interaction of water and hydrogen with nickel surfaces. The results of these studies are described in this thesis. Several studies have been presented at a number of national and international scientific conferences. During his PhD study, Junjun supervised one bachelor student during a three-month research project, and taught several 1<sup>st</sup> and 2<sup>nd</sup> year practical courses.

## Acknowledgements

At the end of this thesis I would like to say that this thesis would have not been possible without the help and encouragement of many people to whom I am very grateful.

Firstly, I would like to express my gratitude to Ludo Juurlink and Aart Kleyn for providing me the opportunity to study for a PhD degree in Leiden and for their continuous help and support. I would also like to thank Wim Roeterdink and Jacques Aarts for initiating me into the secrets of the UHV system and the high-resolution electron energy loss spectrometer.

I am very grateful to all other colleagues for the fantastic working atmosphere created in our group: Marc Koper, Ben Nieuwenhuys, Johan Bakker, Alex Yanson, Irene Groot, Christine Hahn, Janneke van der Niet, Klaas Jan Schouten, Aart Gieske, Andrea Gluhoi, Andrey Koverga, Dima Bashlakov, Francois Devred, Gonzalo García, José Dijkzeul, Matteo Duca, Para Rodríguez-Pérez, Steven Kleijn, Stanley Lai, and Thijs Hoogenboom.

I kept the last words for my family. I would like to thank my wife Haiyan Liu, and my parents for their love and total support during my study. I would also like to thank my little daughter Elaine Shan for the happiness that she gives to the whole family.

To those whom I forgot to mention, I beg that person's pardon in advance.