Curriculum vitae

Education

Ph.D.
- **Ph.D. in Chemistry**   Oct 2002–Dec 05
  Freie Universität Berlin, Germany.
  Relevant courses: International Max Planck Research School for Complex Surfaces in Materials Science.

M.S.
- **M.S. in Physical Chemistry**   Oct 2001–Jun 02
  Université de Bourgogne, Dijon, France.
  Relevant courses: École Doctorale Carnot, emphasis on **Materials Science**.
- **Undergraduate studies** in **Natural Sciences**   Oct 1997–Jun 01
  Université de Bourgogne, Dijon, France.
- French **secondary-school diploma** in **Natural Sciences**   1997
  Lycée Pontus de Thiard, Chalon sur Saône, France.

Research

2002–05
- **Ph.D.**   3 years
  Fritz-Haber-Institut der Max-Planck-Gesellschaft, dpt. Chemical Physics, Berlin, Germany.
  Title: Diffusion and Fluctuations of CO Oxidation on Pd Supported Nanoparticles: A Combined Experiments and Simulations Study.
  Achievements: Experience in **molecular-beam** techniques and **IRAS**; photoelectron spectroscopy (**HR-PES**, 10 days at BESSY 2, **synchrotron** facilities); **modeling and simulations** using **mean field** approximations and statistical mechanics (**Monte Carlo**, **master equation**); written over 2,000 lines of code in MS Visual C++, Fortran and Matlab; dissertation in English.

2001–02
- **M.S.**   8 months
  Université de Bourgogne – CNRS, Laboratoire de Recherches sur la Réactivité des Solides, Dijon, France.
  Title: Mesoscopic Study of the Interactions Between Grain Boundary and Dislocations.
  Achievements: Experience in **molecular dynamics**; numerical integration of differential equations (**Runge Kutta**, **finite differences**); written over 400 lines of Fortran code.

2001
- **Training period**   3 months
  Katholieke Universität Nijmegen, Laboratory of Analytical Chemistry, the Netherlands.
  Title: Pattern Recognition of ^{1}H NMR Spectra from Brain Tumors.
  Achievements: Experience in statistical chemistry (**chemometrics**); implemented an **artificial neural network** and utilized other statistical methods; written or modified over 15 Matlab scripts and functions; report in English.

Honors & Awards

Awarded the **best Ph.D. oral presentation** of the 3rd EFCATS School on Catalysis.

Presentations

Aug 2005	**Europacat 7**, Sofia, Bulgaria.
	Oral presentation: Catalytic Activity of Oxide Supported Metal Nanoparticles: Surface Oxygen - Subsurface Oxygen - Surface Oxides.
Mar 2005	**DPG (German Physics Society) Einsteinstage**, Berlin, Germany.
	Oral presentation: Surface Diffusion and Fluctuations on Catalyst Nanoparticles.
Sep 2004	**3$^{\text{rd}}$ EFCATS School on Catalysis**, Ustroñ, Poland.
	Oral presentation: Catalytic Activity and Surface Diffusion on Catalyst Nanoparticles: Experiments and Simulations.
Sep 2002	**ECOSS 22**, Prague, Czech Republic.
	Oral presentation: Molecular Beam Studies on Pd Model Catalysts Prepared by Electron Beam Lithography and Metal Vapor Deposition.
Oct 2001	**Annual Meeting of the Dutch NWO/CW** study group **Analytical Chemistry**, Lunteren, the Netherlands.
	Poster: Classification of Magnetic Resonance Data from Human Brain Tumors.

Miscellaneous

Computer skills	Scientific programming, which led to publications in Science and JCP.

- **Operating systems:** Unix, Windows;
- **Languages:** C, Fortran, Matlab, basic scripting abilities;
- **Softwares:** LaTeX, CorelDRAW...
- **Administration:** Administrator of an SGI workstation during the M.S.

Languages	**French** (native), **English** (near native), **German** (average reader and basic speaker).
Personal interests	Independent Japanese cinema, independent music, computers...

Publications

1. Interaction of NO with alumina supported palladium model catalysts. S. Schauermann, V. Johánek, **M. Laurin**, J. Libuda, and H.-J. Freund. *Phys. Chem. Chem. Phys.*, 5:5139–5148, 2003.

2. Low temperature decomposition of NO on ordered alumina films. S. Schauermann, V. Johánek, **M. Laurin**, J. Libuda, and H.-J. Freund. *Chem. Phys. Lett.*, 381:298–305, 2003.

3. Site occupation and activity of catalyst nanoparticles monitored by in situ vibrational spectroscopy. V. Johánek, S. Schauermann, **M. Laurin**, J. Libuda, and H.-J. Freund. *Angew. Chem. Int. Ed.*, 42(26):3035–3038, 2003.

4. On the role of different adsorption and reaction sites on supported nanoparticles during a catalytic reaction: NO decomposition on a Pd/alumina model catalyst. V. Johánek, S. Schauermann, **M. Laurin**, C. S. Gopinath, J. Libuda, and H.-J. Freund. *J. Phys. Chem. B*, 108(38):14244–14254, 2004.

5. Adsorbate mobilities on catalyst nanoparticles studied via the angular distribution of desorbing products. V. Johánek, **M. Laurin**, J. Hoffmann, S. Schauermann, A. W. Grant, B. Kasemo, J. Libuda, and H.-J. Freund. *Surf. Sci.*, 561(2-3):L218–L224, 2004.

6. Fluctuations and bistabilities on catalyst nanoparticles. V. Johánek, **M. Laurin**, A. W. Grant, B. Kasemo, C. R. Henry, and J. Libuda. *Science*, 304(5677):1639–1644, 2004.

7. CO adsorption and thermal stability of Pd deposited on a thin FeO(111) film. R. Meyer, D. Lahav, T. Schalow, **M. Laurin**, B. Brandt, S. Schauermann, S. Guimond, T. Klüner, H. Kuhlenbeck, J. Libuda, Sh. Schaikhutdinov, and H.-J. Freund. *Surf. Sci.*, 586(1–3):174–182, 2004.

8. Transient and steady state CO oxidation kinetics on nanolithographically prepared supported Pd model catalysts: Experiments and simulations. **M. Laurin**, V. Johánek, A. W. Grant, B. Kasemo, J. Libuda, and H.-J. Freund. *J. Chem. Phys.*, 123(5):054701, 2005.

9. Local reaction rates and surface diffusion on nanolithographically prepared model catalysts: Experiments and simulations. **M. Laurin**, V. Johánek, A. W. Grant, B. Kasemo, J. Libuda, and H.-J. Freund. *J. Chem. Phys.*, 122:084713, 2005.

10. Model studies in heterogeneous catalysis: From structure to kinetics. J. Libuda, S. Schauermann, **M. Laurin**, T. Schalow, and H.-J. Freund. *Monatshefte für Chemie*, 136(1):59–75, 2005.

11. Model studies in heterogeneous catalysis at the microscopic level: From structure and composition of surfaces to reaction kinetics. J. Libuda, T. Schalow, B. Brandt, **M. Laurin**, and S. Schauermann. *Microchimica Acta*, 2005.

12. Oxygen storage at the metal–oxide interface of catalyst nanoparticles. T. Schalow, **M. Laurin**, B. Brandt, S. Schauermann, S. Guimond, H. Kuhlenbeck, D. E. Starr, Sh. Shaikhutdinov, J. Libuda, and H.-J. Freund. *Angew. Chem. Int. Ed.*, 44(46):7601–7605, 2005.