

PUBLICATIONS

- 1. Low-dimensional systems on self-structured metal surfaces**
K. Swamy, A. Menzel, R. Beer, C. Deisl, S. Penner and E. Bertel
Surf. Sci. **482-485** (2001) 402-12
- 2. Molecular adsorption on the quasi-one-dimensional c(2×2)-Br/Pt(110) surface**
C. Deisl, K. Swamy, S. Penner and E. Bertel
PhysChemChemPhys. **3** (2001) 1213 -17
- 3. Fermi-surface engineering of a devil's staircase**
K. Swamy, C. Deisl, A. Menzel, R. Beer, S. Penner and E. Bertel
Phys. Rev. B **65** (2002) 121404(R), Rapid Communications
- 4. Pt/ceria thin film model catalysts after high-temperature reduction: A (HR)TEM study**
S. Penner, G. Rupprechter, H. Sauer, D.S. Su, R. Tessadri, R. Podlucky, R. Schlögl and K. Hayek
Vacuum **71** (2003) 71
- 5. Platinum nanocrystals supported by silica, alumina and ceria: metal-support interaction due to high-temperature reduction in hydrogen**
S. Penner, D. Wang, D.S. Su, G. Rupprechter, R. Podlucky, R. Schlögl and K. Hayek
Surf. Sci. **532-535** (2003) 276
- 6. Transmission electron microscopy of silica-supported Pt particles**
D. Wang, S. Penner, G. Rupprechter, D.S. Su, K. Hayek and R. Schlögl
Mater. Chem. Phys., **81 (2-3)** (2003) 341
- 7. Silicide formation on a Pt/SiO₂ model catalyst studied by TEM, EELS and EDXS**
D. Wang, S. Penner, D.S. Su, G. Rupprechter, K. Hayek and R. Schlögl
J. Catal. **219 (2)** (2003) 434
- 8. Pt/SiO₂ model catalyst: Metal-support interaction studied by TEM and EELS**
D. Wang, S. Penner, D.S. Su, G. Rupprechter, K. Hayek and R. Schlögl
Microscopy and Microanalysis **9 (Suppl. 3)** (2003) 200
- 9. Regular Alumina-Supported Nanoparticles of Iridium, Rhodium and Platinum under Hydrogen Reduction: Structure, Morphology and Activity in the Neopentane conversion**
K. Hayek, H. Goller, S. Penner, G. Rupprechter and C. Zimmermann
Catal. Lett. **92 (1-2)** (2004) 1

10. **Rh and Pt nanoparticles supported by CeO₂: Metal-support interaction upon high-temperature reduction observed by electron microscopy**
S. Penner, D. Wang, R. Schloegl and K. Hayek
PhysChemChemPhys **6** (2004) 5244
11. **Rh particles supported by thin vanadia films as model systems for catalysis: An electron microscopy study**
S. Penner, D. Wang, R. Schloegl and K. Hayek
Thin Solid Films **484** (2005) 10
12. **Interaction of Pt and Rh nanoparticles with ceria supports: Ring opening of methylcyclobutane and CO hydrogenation after reduction at 373-723K**
M. Fuchs, B. Jenewein, S. Penner, K. Hayek, G. Rupprechter, D. Wang, R. Schlögl, J.J. Calvino, S. Bernal
Appl. Catal. A **294** (2005) 279
13. **Hydrogen-induced metal-oxide interaction studied on noble metal model catalysts**
W. Unterberger, B. Jenewein, B. Klötzer, S. Penner, W. Reichl, G. Rupprechter, D. Wang, R. Schlögl and K. Hayek
React. Kinet. Catal. Lett., **87 (2)** (2006) 215
14. **Rh-V alloy formation in Rh-VO_x thin films studied by electron microscopy**
S. Penner, B. Jenewein, D. Wang, R. Schlögl and K. Hayek
Phys.Chem.Chem.Phys. **8** (2006) 1223 – 1229
15. **Structure-activity correlations in thin film model catalysts: CO hydrogenation on Rh/VO_x, Part I: The morphology, composition and structure of vanadia-supported and -promoted Rh particles upon oxidation and reduction**
S. Penner, B. Jenewein, D. Wang, R. Schlögl and K. Hayek
Appl. Catal. A **308** (2006) 31
16. **Structure-activity correlations in thin film model catalysts: CO hydrogenation on Rh/VO_x, Part II: Catalytic activity as a function of oxidation and reduction,**
B. Jenewein, S. Penner, D. Wang, R. Schlögl and K. Hayek
Appl. Catal. A **308** (2006) 43
17. **Growth and structural stability of well-ordered PdZn nanoparticles**
S. Penner, B. Jenewein, H. Gabasch, B. Klötzer, D. Wang, A. Knop-Gericke, R. Schlögl, K. Hayek
J. Catal. **241** (2006) 14
18. **Zn adsorption on Pd(111): ZnO and PdZn alloy formation**
H. Gabasch, S. Penner, B. Jenewein, B. Klötzer, A. Knop-Gericke, R. Schlögl, K. Hayek

J. Phys. Chem. B **110** (23) (2006) 11391

19. Hydride formation and stability of SiO₂– supported Pd nanoparticles studied by (HR)TEM and SAED

B. Jenewein, S. Penner, H. Gabasch, B. Klötzer, D. Wang, A. Knop-Gericke, R. Schlögl, K. Hayek
J. Catal. **241** (2006) 155

20. Growth and decomposition of aligned and ordered PdO nanoparticles

S. Penner, B. Jenewein, H. Gabasch, B. Klötzer, D. Wang, A. Knop-Gericke, R. Schlögl, K. Hayek
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21. Interactions of O₂ with Pd nanoparticles on α -Al₂O₃(0001) at low and high O₂ pressures

S. Penner, P. Bera, L.T. Ngo, J.J. W. Harris, S. Pedersen, C. T. Campbell
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22. Fluctuations and phase separation in Br/Pt(110)

E. Dona, T. Lörting, S. Penner, M. Minca, A. Menzel, E. Bertel, J. Schoiswohl, S. Berkebile, F. P. Netzer, R. Zucca, J. Redinger
Surf. Sci. **601** (2007) 4386

23. Structure and redox properties of VO_x and Pd/VO_x thin film model catalysts studied by TEM and SAED

S. Penner, B. Klötzer, B. Jenewein
Phys.Chem.Chem.Phys. **9** (2007) 2428

24. Chemisorption of hydrogen on the missing row Pt (110)-(1x2) surface

M. Minca, S. Penner, T. Loerting, Z. Zhang, A. Menzel, R. Zucca, J. Redinger, E. Bertel
Top. Catal. **46** (2007) 161

25. Comparison of the reactivity of different Pd-O species in CO oxidation

H. Gabasch, S. Penner, B. Jenewein, B. Klötzer, D. Wang, A. Knop-Gericke, R. Schlögl, K. Hayek
Phys.Chem.Chem.Phys **9** (2007) 533

26. Pd-Al interaction at elevated temperatures: A TEM and SAED study

S. Penner, B. Jenewein, K. Hayek
Catal. Lett. **113** (No. 1-2) (2007) 65

27. Fluctuations and phase separation in a quasi-one-dimensional system

E. Dona, T. Loerting, S. Penner, M. Minca, A. Menzel, E. Bertel, J. Schoiswohl, S. Berkebile, F. P. Netzer, R. Zucca, J. Redinger
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28. **Surface resonances on transition metals as low dimensional model systems**
M. Minca, S. Penner, E. Dona, A. Menzel, E. Bertel, V. Brouet, J. Redinger
New J. Phys. **9** (2007) 38
29. **The structure and composition of oxidized and reduced WO₃ thin films**
S. Penner, B. Klötzer, B. Jenewein, X. Liu, F. Klauser, E. Bertel
Thin Solid Films **516** (2008) 2829
30. **A new preparation pathway to well-defined In₂O₃ nanoparticles at low substrate temperatures**
H. Lorenz, M. Stöger-Pollach, S. Schwarz, J. Bernardi, Ch. Pfaller, B. Klötzer, S. Penner
J. Phys. Chem. C **112** (2008) 918
31. **Growth and stability of Ga₂O₃ nanospheres**
S. Penner, B. Klötzer, B. Jenewein, X. Liu, E. Bertel, F. Klauser
Thin Solid Films **516** (2008) 4742
32. **Hydrogen on polycrystalline β-Ga₂O₃: surface chemisorption, defect formation, reactivity**
W. Jochum, S. Penner, R. Kramer, B. Klötzer, K. Föttinger, G. Rupprechter
J. Catal. **256** (2008) 268
33. **Defect formation and water-gas shift activity on polycrystalline β-Ga₂O₃**
W. Jochum, S. Penner, R. Kramer, B. Klötzer
J. Catal. **256** (2008) 278
34. **Novel methanol steam reforming activity and selectivity of pure In₂O₃**
H. Lorenz, M. Stöger-Pollach, S. Schwarz, J. Bernardi, K. Pfaller, B. Klötzer, S. Penner
Appl. Catal. A **347** (2008) 34

TALKS

1. **Structure and composition of thin film model catalysts of Rh/ceria and Pt/ceria after high-temperature reduction**

S. Penner and K. Hayek

6th JRP Meeting, Gasthof Klugbauer, Steiermark, 18-21.11.2001

2. **Structure and composition of oxide-supported metal nanoparticles after high-temperature reduction**

S. Penner and K. Hayek

7th JRP Meeting, Schloss Seggau, Leibnitz, Steiermark, 22.-25.5.2002

3. **Platinum nanocrystals supported by silica, alumina and ceria: metal-support interaction due to high-temperature reduction in hydrogen**

S. Penner, D. Wang, D.S. Su, G. Rupprechter, R. Schlögl and K. Hayek

ECOSS 21/NANO 7, Malmö, Sweden, 24.-28.6.2002

4. **The structure and morphology of Pt particles after high-temperature reduction**

S. Penner, D. Wang, D.S. Su, G. Rupprechter, R. Schlögl and K. Hayek

6th Pannonian Symposium on Catalysis, Obergurgl, Tirol, Austria, 11.-14.9.2002

5. **Preparation and Characterization of thin VO_x films**

S. Penner and K. Hayek

8th JRP Meeting, Burg Schlaining, Schlaining, Burgenland, 19.-22.11.2002

6. **The structure and morphology of oxide-supported Pt nanoparticles after high-temperature reduction**

S. Penner, D. Wang, D.S. Su, G. Rupprechter, R. Schlögl and K. Hayek

1st International School Conference for young scientists: Catalyst design, Novosibirsk, Russia, 2.-6.12.2002

7. **Structure and composition of oxide-supported metal nanoparticles after high-temperature reduction**

S. Penner and K. Hayek

Surface Science Seminar, Department of Chemistry, University of Washington, Seattle, 3.12.2004

8. **Interaction of oxygen with Pd nanoparticles on α -Al₂O₃(0001) at low and high pressures**

S. Penner and C.T. Campbell

3^d Palladium Day, Institute of Inorganic Chemistry, FHI Berlin, 15.9.2005

9. LEED studies of phase transitions in Br/Pt(110)

S. Penner, T. Lörting, E. Bertel

Frühjahrstagung der Deutschen Physikalischen Gesellschaft, Dresden, 27.3-31.3.2006.

10. Growth and structural stability of well-ordered PdZn alloy nanoparticles

S. Penner, B. Jenewein, H. Gabasch, D. Wang, B. Klötzer, A. Knop-Gericke, R. Schlögl,
K. Hayek

ECOSS 24, Paris, France, 4.-8.9.2006

11. Ga₂O₃ and ZnO thin films as supports for Pd model catalysts

S. Penner, B. Jenewein, F. Klauser, X. Liu, B. Klötzer, E. Bertel

5th Palladium-Day, FHI Berlin, 6.2.2007

12. Structure and catalytic performance of Ga₂O₃ and Pd/Ga₂O₃ methanol steam reforming catalysts

S. Penner, H. Lorenz, B. Klötzer

7th Palladium Day, Bad Dreikirchen, 29.9.2008

POSTER PRESENTATIONS

1. **Bromine on Pt(110): A surface analogon to halogen-bridged transition-metal linear-chain compounds**

R. Beer, K. Swamy, S. Penner, A. Menzel and E. Bertel

Physical Chemistry in Confining geometries: From Single molecules to Mesoscopic Systems, International Discussion Meeting, Deutsche Bunsen-Gesellschaft für Physikalische Chemie, Berlin, Germany, 2000

2. **Adsorption studies on a charge density wave system: Br and NO on Pt(110)/Br-c(2x2)**

C. Deisl, K. Swamy, S. Penner and E. Bertel

Physical Chemistry in confining geometries: From single molecules to Mesoscopic Systems, International Discussion Meeting, Deutsche Bunsen-Gesellschaft für Physikalische Chemie, Berlin, Germany, 2000

3. **Bromine on Pt(110): A surface analogon to halogen-bridged transition-metal linear chain compounds:**

R. Beer, K. Swamy, S. Penner, A. Menzel and E. Bertel

9. Österreichische Chemietage, Innsbruck, 25.-27.9.2000

4. **Structure, CO chemisorption, and CO hydrogenation activity of Pt/ceria and Rh/ceria impregnated model catalysts**

M. Fuchs, S. Penner, K. Hayek, S. Bernal, J.J. Calvino, J.M. Gatica, G. Rupprechter

5th European Congress on Catalysis (EUROPACAT-5), Limerick, Ireland, Sept. 2-7 2001.

5. **Structure, morphology and catalytic activity of thin film model catalysts: Rh and Pt nanoparticles supported by alumina and ceria**

S. Penner, M. Fuchs, B. Jenewein, K. Hayek, G. Rupprechter, G. Blanco, J.J. Calvino

5th European Congress on Catalysis (EUROPACAT-5), Limerick, Ireland, Sept. 2-7 2001 and Dreiländertagung für Elektronenmikroskopie, Innsbruck, 9.- 14. 9. 2001.

6. **Restructuring of supported Ir, Pt and Rh nanoparticles during catalyst activation and reaction: A high resolution TEM study**

G. Rupprechter, S. Penner, K. Hayek

Dreiländertagung für Elektronenmikroskopie, Innsbruck, 9.- 14. 9. 2001.

7. **SiO₂-supported Pt particles studied by electron microscopy**
D. Wang, S. Penner, G. Rupprechter, D.S. Su, K. Hayek and R. Schlögl
Electron Microscopy of Solids 9, Krynica, Poland, 19.-23.5.2002
8. **Pt thin film model catalysts after high-temperature reduction: A (HR)TEM study**
S. Penner, G. Rupprechter, D.S. Su, D. Wang, R. Schlögl and K. Hayek
Joint-Vacuum-Conference 9, Schloss Seggau, Steiermark, Austria, 16.-29.6.2002
9. **Rh nanoparticles supported by VO_x: A (HR)TEM study of V₂O₃-supported Rh nanoparticles**
S. Penner, D. Wang, D.S. Su, R. Schlögl and K. Hayek
Electron Crystallography on solid state inorganic materials and nanostructures, Moscow, Russia, 23.-27.6.2003
10. **Catalyst characterisation and activation studied by electron microscopy: Rh nanoparticles supported by VO_x**
S. Penner, D. Wang, R. Schlögl and K. Hayek
6th European Congress on Catalysis (EUROPACAT-6), Innsbruck, Austria, 30.8-3.9. 2003
11. **Atomic structure and Catalytic activity of Ceria Supported Pt and Rh Nanoparticles studied by HRTEM and Microreactor Kinetics**
G. Rupprechter, M. Fuchs, B. Jenewein, S. Penner, K. Hayek
6th European Congress on Catalysis (EUROPACAT-6), Innsbruck, Austria, 30.8-3.9. 2003
12. **A comparative study of Rh/V bimetallic particles and V/Rh subsurface alloys: structure and catalytic properties**
B. Jenewein, S. Penner, W. Unterberger, D. Wang, R. Schlögl and K. Hayek, W. Reichl
13th International Congress on Catalysis, Palais des Congres, Paris, France, 11.- 16.7.2004
13. **Interaction of oxygen with small Pd particles**
S. Penner, P. Bera, S. Pedersen, CT Campbell
Gordon research Conference: Chemical reactions at surfaces, Ventura, CA, USA, 13 -18.2.2005
14. **Growth and sintering of Pd particles on CeO₂ (111)**
S. Penner, P. Bera, S. Pedersen, CT Campbell
Gordon research Conference: Chemical reactions at surfaces, Ventura, CA, USA, 13 -18.2.2005
15. **The hydrogenation of CO and CO₂ on Rh and Pd surfaces promoted by vanadium and**

vanadium oxides

B. Jenewein, S. Penner, W. Unterberger, D. Wang, R. Schlögl, K. Hayek

7th European Congress on Catalysis (EUROPACAT-7), Sofia, Bulgaria, 28.8-1.9.2005

16. **Structure-activity correlations in thin film model catalysts: CO hydrogenation over Rh/VO_x**

S. Penner, B. Jenewein, D. Wang, R. Schlögl and K. Hayek

39. Jahrestreffen deutscher Katalytiker, Weimar, Deutschland, 14.-17.3.2006

17. **High coverage H phase on Pt(110)**

S. Penner, M. Minca, A. Menzel, T. Lörting, E. Dona, E. Bertel

European Conference on Surface Science 24 (ECOSS-24), Paris, France, 4.- 8.9.2006

18. **The structure and composition of oxidized and reduced tungsten oxide films**

S. Penner, B. Jenewein, F. Klauser, X. Liu, B. Klötzer, E. Bertel

Frühjahrstagung der Deutschen Physikalischen Gesellschaft, Dresden, 27.3-31.3.2007

19. **Pure Ga₂O₃ and binary Ga₂O₃/WO₃ thin films as model systems for catalysis**

S. Penner, B. Jenewein, F. Klauser, X. Liu, B. Klötzer, E. Bertel

8th European Congress on Catalysis (EUROPACAT-8), Turku, Finland, 26.8-3.9. 2007

20. **Reaction Control on Nanostructured Model Catalysts**

B. Klötzer, S. Penner, W. Jochum, H. Lorenz, C. Rameshan

1. Göch-Symposium „Physikalische Chemie“, Wien, 19.-20.10.2007

21. **Preparation, structural and catalytic characterization of pure Ga₂O₃ and mixed Ga₂O₃/WO₃ thin films as model systems for catalysis**

S. Penner, H. Lorenz, B. Klötzer, X. Liu, F. Klauser, E. Bertel, M. Stöger-Pollach, J. Bernardi

14th International Congress on Catalysis, Seoul, Südkorea, 13-18.7.2008

22. **Novel Methanol Steam Reforming activity of pure In₂O₃ catalysts**

S. Penner, H. Lorenz, B. Klötzer, M. Stöger-Pollach

14th International Congress on Catalysis, Seoul, Südkorea, 13-18.7.2008

