

List of Publications (IRS)

Dr.-Ing. Georg Herdrich

July 2007

Caption:

- ❶ Atmospheric Entry
- ❷ Plasma Technology / Technology Transfer
- ❸ Electric Propulsion / Propulsion
- ❹ Advanced Concepts
- ❺ Systems Engineering

Scientific Journals

1. G. Herdrich, M. Auweter-Kurtz, H. Habiger, *Pyrometric Temperature Measurements on Thermal Protection Systems*, GAMM 98 (Gesellschaft für angewandte Mathematik und Mechanik) GAMM Tagung 1998 (Gesellschaft für angewandte Mathematik u. Mechanik), Bremen, April 1998, *edit. Zeitschrift f. angewandte Mathematik u. Mechanik (ZAMM)* 79, Suppl. 3, pages S945-S946, 1999. ❶
(exp. / num.)
2. G. Herdrich, M. Auweter-Kurtz, H.L. Kurtz, *New Inductively Heated Plasma Source for Reentry Simulations*, also AIAA Paper 98-3022, presented on the 20th AIAA Advance Measurement and Ground Testing Conference, Albuquerque, NM, June 1998, *Journal of Thermophysics and Heat Transfer*, Vol. 14, No. 2, pp. 244-249, April-June 2000. ❶
(exp.)
3. G. Herdrich, M. Auweter-Kurtz, H.L. Kurtz, T. Laux, M. Winter, *Operational Behavior of the Inductively Heated Plasma Source IPG3 for Re-entry Simulations*, *Journal of Thermophysics and Heat Transfer*, Vol. 16, No. 3, pp. 440-449, July-September 2002; auch AIAA-99-3497, 33rd Thermophysics Conference, Norfolk, Virginia, June/July 1999; auch SFB 259 Preprint-Reihe, 1999/49. ❶
(exp.)
4. G. Herdrich, M. Auweter-Kurtz, P. Endlich, *Mars Entry Simulation using the Inductively Heated Plasma Generator IPG4*, Engineering Note, *Journal of Spacecrafts and Rockets* Vol. 40, No. 5, pp. 690-694, Sept.-Oct. 2003. ❶, ❹
(exp.)
5. M. Auweter-Kurtz, M. Fertig, G. Herdrich, T. Laux, U. Schöttle, Th. Wegmann, M. Winter, *Entry Experiments at IRS – In-flight Measurement during Atmospheric Entries*, 53rd Int. Astronautical Congress, Houston, TX, USA, Oct. 2002, *Space Technology Journal (ST)*, Vol. 23, Issue 4, pp. 217-234, July 2003, ISSN 0892-9270, R. Monti, Universität Neapel. ❶
(exp. / num.)
6. M. Auweter-Kurtz, G. Herdrich, S. Laure and H.P. Wagner, *Plasma Source Development for Technical Applications at IRS*, Institut für Raumfahrtssysteme (IRS), Universität Stuttgart, D-70550, Dr. Laure Plasmatechnologie GmbH, Germany, The 4th International Symposium on Applied Plasma Science-ISAPS '03, Kyoto/Japan 2003/09/01-05, *Advances in Applied Plasma Science*, Vol. 4, 2003, S. 157-162, *Vacuum*, Vol 73/3-4 (2004) pp 309-316. ❶, ❷, ❸
(exp.)
7. G. Herdrich, M. Auweter-Kurtz, M. Fertig, S. Löhle, S. Pidan, T. Laux, *Oxidation Behaviour of SiC-based Thermal Protection System Materials using newly developed Probe Techniques*, Paper AIAA 2004-2173, 37th AIAA Thermophysics Conference, Portland, Oregon, USA, June/July 2004, *Journal of Spacecraft and Rockets*, pp. 817-824, Vol. 42, No. 5, Sept.-Oct. 2005. ❶
(exp. / num.)

8. S. Pidan, M. Auweter-Kurtz, G. Herdrich, M. Fertig, *Recombination Coefficients and Spectral Emissivity of Silicon Carbide-Based Thermal Protection Materials*, Paper AIAA 2004-2274, 37th AIAA Thermophysics Conference, Portland, Oregon, USA, June/July 2004, *Journal of Thermophysics and Heat Transfer*, pp. 566-571, Vol. 19, No. 4, Oct.-Dec. 2005. ①
(exp. / num.)
9. M. Matsui¹, K. Komurasaki⁴, G. Herdrich², and M. Auweter-Kurtz³: *Enthalpy Measurement in Inductive Plasma Generator Flow by Laser Absorption Spectroscopy*, ^{1,4}Department of Advanced Energy, The University of Tokyo, Kashiwanoha 5-1-5, Kashiwa, Chiba 277-8562, Japan, ^{2,3}Institut für Raumfahrtssysteme, Universität Stuttgart, *AIAA Journal*, pp. 2060-2064, Vol. 43, No. 9, September 2005. ①
(exp.)
10. M. Matsui, K. Komurasaki, G. Herdrich, and M. Auweter-Kurtz, *Diagnostics of Inductively Heated Plasma Generator Flow by Laser Absorption Spectroscopy*, *Journal of the Japan Society for Aeronautical and Space Sciences*, Vol. 53, No. 619, 2005, pp.379-384. ①
(exp.)
11. G. Herdrich, M. Auweter, *Inductively heated Plasma Sources for Technical Applications*, Institut für Raumfahrtssysteme (IRS) and Steinbeis Transfer Centre Plasma and Space Technology (STC PRT), *Vacuum*, Vol. 80, pp. 1138-1143, 2006. ②, ④
(exp. / num.)
12. G. Herdrich, M. Auweter-Kurtz, M. Fertig, A. Nawaz, D. Petkow, *MHD Flow Control for Plasma Technology Applications*, Institut für Raumfahrtssysteme (IRS) and Steinbeis Transfer Centre Plasma and Space Technology (STC PRT), *Vacuum*, Vol. 80, pp. 1167-1173, 2006. ②, ③
(exp. / num.)
13. G. Herdrich, D. Petkow, M. Auweter-Kurtz, *High Enthalpy, water-cooled and thin-walled ICP Sources: Characterization and MHD-Optimization*, eingereicht beim *Cambridge Journal of Plasma Physics*, April 2007. ①, ②
(exp. / theo.)

Contributions in Books

1. U. Gaisbauer, H. Knauss, S. Wagner, G. Herdrich, M. Fertig, M. Winter, M. Auweter-Kurtz, *Flow Simulation and Problems in Ground Test Facilities*, in **Basic Research and Technologies for Two-Stage-to-Orbit Vehicles**, D. Jacob, G. Sachs, S. Wagner (Ed.), Deutsche Forschungsgemeinschaft, Final Report on Collaborative Research Centres 253, 255 and 259, Wiley-VCH Verlag GmbH & Co. KgaA, ISBN-13: 978-3-527-27735-3, ISBN-10: 3-527-27735-8, S. 165-199, 2005. ①
(exp. / num.)
2. M. Auweter-Kurtz, M. Fertig, G. Herdrich, K. Hirsch, S. Löhle, S. Pidan, U. Schumacher, M. Winter, *Characterization of High-Enthalpy Flows*, in **Basic Research and Technologies for Two-Stage-to-Orbit Vehicles**, D. Jacob, G. Sachs, S. Wagner (Ed.), Deutsche Forschungsgemeinschaft, Final Report on Collaborative Research Centres 253, 255 and 259, Wiley-VCH Verlag GmbH & Co. KgaA, ISBN-13: 978-3-527-27735-3, ISBN-10: 3-527-27735-8, S. 199-220, 2005. ①
(exp. / num.)
3. F. Aldinger, M. Auweter-Kurtz, M. Fertig, G. Herdrich, K. Hirsch, P. Lindner, D. Matusch, G. Neuer, U. Schumacher, M. Winter, *Behaviour of Reusable Heat Shield Materials under Re-entry Conditions*, in **Basic Research and Technologies for Two-Stage-to-Orbit Vehicles**, D. Jacob, G. Sachs, S. Wagner (Ed.), Deutsche Forschungsgemeinschaft, Final Report on Collaborative Research Centres 253, 255 and 259, Wiley-VCH Verlag GmbH & Co. KgaA, ISBN-13: 978-3-527-27735-3, ISBN-10: 3-527-27735-8, S. 527-549, 2005. ①
(exp. / num.)
4. G. Herdrich, M. Auweter-Kurtz, M. Fertig, M. Winter, M. Schüssler, *Advanced Temperature and Heat Flux Sensor Systems for Atmospheric Entry Vehicles*, in **Verfahren und Geräte in der Temperatur- und Feuchtemesstechnik**, Herausgeber Physikalisch Technische Bundesanstalt Braunschweig und Berlin, ISBN 3-9805741-7-2, S. 343-355, Temperatur 2006 Fachtagung in Berlin, May 2006. ①
(exp. / num.)

Academic Publications

1. Diplomarbeit: *Emissionsspektroskopische Untersuchung der Stickstoff-Molekülstrahlung im Plasmawindkanal*, Diplomarbeit Institut für Raumfahrtsysteme IRS-96-S08, July 1996. ①
(exp. / num.)
2. Dissertation: *Aufbau, Qualifikation und Charakterisierung einer induktiv beheizten Plasmawindkanalanlage zur Simulation atmosphärischer Eintrittsmanöver*, Institut für Raumfahrtsysteme, Universität Stuttgart, Shaker Verlag GmbH, Aachen, ISBN 3-8322-4338-0, 2005, auch URN: urn:nbn:de:bsz:93-opus-21478, URL: <http://elib.uni-stuttgart.de/opus/volltexte/2005/2147/>, Dec. 2004. ①
(exp. / num.
/ theo.)

Lecture Manuscripts

1. M. Auweter-Kurtz, G. Herdrich, M. Winter, *Meßverfahren für strömende Plasmen*, Institut für Raumfahrtssysteme, Vorlesung an der Universität Stuttgart. **1, 2**
(exp. / num.)
2. M. Auweter-Kurtz, H. Kurtz, G. Herdrich, F. Huber, T. Wegmann, M. Winter, Zimmermann, *Unkonventionelle Raumfahrtantriebe*, Institut für Raumfahrtssysteme, Vorlesung an der Universität Stuttgart. **2 - 5**
(exp. / num.)
3. G. Herdrich¹, M. Auweter-Kurtz¹, M. Müller², J. Steinwandel³, Th. Ullmann⁴, *Plasmaverfahren für Industrielle Anwendungen*, ¹Institut für Raumfahrtssysteme, ²Bosch, ³EADS München, ⁴DLR Stuttgart, Vorlesung an der Universität Stuttgart. **2, 4, 5**
(exp. / num.)
4. G. Herdrich¹, M. Auweter-Kurtz¹, K. Hannemann², *Wiedereintrittstechnologie von Raumflugsystemen*, ¹Institut für Raumfahrtssysteme, ²DLR Göttingen, Vorlesung an der Universität Stuttgart. **1, 5**
(exp. / num.)
5. Monika Auweter-Kurtz, Markus Fertig, Georg Herdrich, Michael Winter, *Advanced integrated TPS and Non-Equilibrium Chemistry Instrumentation*, RTO lecture still in print; von Karman Institute for Fluid Dynamics, RTO Course on Flight Experiments for Hypersonic Vehicle Development, Belgium, October 2005. **1**
(exp. / num.)
6. G. Herdrich, *Atmospheric Entry Technology*, Manuskripte und Folien, Department of Advanced Energy, Graduate School of Frontier Sciences, Universität Tokio, 2007. **1, 5**
(exp. / num.)

Publications in Printed Books of Congresses / Contributions for Congresses

1. G. Herdrich, M. Auweter-Kurtz, H.L. Kurtz, M. Winter, *Emissionsspektroskopische Untersuchung der Stickstoffmolekülstrahlung im Plasmawindkanal*, DGLR Jahrestagung 1997, Jahrbuch DGLR-JT97-139 NWP, Institut für Raumfahrtssysteme, 1997. **1**
(exp. / num.)
2. G. Herdrich, M. Auweter-Kurtz, H. Habiger, M. Hartling, *Multi-Channel Temperature Measurements on Ceramic Heat Shields*, IAF-97-I.5.06, 48th International Astronautical Congress, Turin, Italien, October, 1997. **1, 4, 5**
(exp. / num.)
3. G. Herdrich, M. Auweter-Kurtz, H. Kurtz, S. Lenzner, *A Test Facility With a Newly Developed Inductively Heated Plasma Generator for TPS Re-Entry Simulations*, 3rd European Workshop on Thermal Protection Systems, Noordwijk, Holland, March 1998. **1**
(exp.)
4. M. Auweter-Kurtz, H. Habiger, G. Herdrich, G. Hilfer, H. Kurtz, S. Laure, E. Schreiber, T. Wegmann, *The Magnetoplasmadynamic Generator RD7 - A New Plasma Source for Large Structure Testing*, 3rd European Workshop on Thermal Protection Systems, Noordwijk, Nolland, March 1998. **1**
(exp.)
5. H. Habiger, M. Auweter-Kurtz, H. Frühholz, G. Herdrich, *PYREX - Pyrometric Temperature Measurement on the Ceramic TPS of the Re-Entry Capsule MIRKA*, 3rd European Workshop on Thermal Protection Systems, ESTEC, Holland, March 1998. **1**
(exp. / theo.)
6. G. Herdrich, M. Auweter-Kurtz, M. Hartling, T. Laux, *A Combined Pyrometric Temperature and Catalytic Sensor System for the Nose Cone of X-38*, 3rd European Symposium on Aerothermodynamics for Space Vehicles, Hrsg. R.A. Harris, ESTEC, Noordwijk, ESA SP-426, ISBN 92-9092-704-6, S. 695-701, Holland, March 1998. **1**
(exp. / theo.)
7. J. Heiermann, M. Auweter-Kurtz, P.C. Sleziona, G. Herdrich, *Numerical Evaluation of an Inductive Plasma Wind Tunnel Source on Structured and Unstructured Meshes*, 3rd European Symposium on Aerothermodynamics for Space Vehicles, Hrsg. R.A. Harris, ESTEC, Noordwijk, NL, ESA SP-426, ISBN 92-9092-704-6, S. 567-571, Holland, March 1998. **1**
(num.)

8. M. Auweter-Kurtz, F. Hammer, G. Herdrich, H. Kurtz, T. Laux, E. Schreiber, Th. Wegmann, *The Ground Test Facilities for TPS at the Institut für Raumfahrtsysteme*, 3rd European Symposium on Aerothermodynamics for Space Vehicles, Hrsg. R.A. Harris, ESTEC, Noordwijk, NL, ESA SP-426, ISBN 92-9092-704-6, S. 529-536, Holland, March 1998. ①
(exp.)
9. G. Herdrich, M. Auweter-Kurtz, M. Hartling, T. Laux, *Present Design of the Pyrometric Sensor System PYREX-KAT38 for X-38*, Proceedings of the AAAF 1st International Symposium: Atmospheric Re-Entry Vehicles and Systems, March 1999. ①, ⑤
(exp. / theo.)
10. T. Laux, G. Herdrich, M. Auweter-Kurtz, *Material and Heat Flux Tests with Sintered Silicon Carbide in Oxygen and Nitrogen Plasmas*, Proceedings of the 1st Joint French-German Symposium on Simulation of Atmospheric Entries by Means of Ground Test Facilities, Paper 3.3, Stuttgart, Deutschland, November 1999. ①
(exp.)
11. G. Herdrich, M. Auweter-Kurtz, T. Laux, *The Influence of the Gas Injection on the Performance of the Inductively Heated Plasma Generator IPG3*, Proceedings of the 1st Joint French-German Symposium on Simulation of Atmospheric Entries by Means of Ground Test Facilities, Paper 1.2, Stuttgart, Deutschland, November 1999. ①, ②
(exp.)
12. Th. Wegmann, M. Auweter-Kurtz, G. Herdrich, H. Kurtz, T. Laux, E. Schreiber: *Re-entry Simulation Capabilities in the Arc Heated Plasma Wind Tunnels of the IRS*, Proceedings of the 1st Joint French-German Symposium on Simulation of Atmospheric Entries by Means of Ground Test Facilities, Paper 1.6, Stuttgart, Deutschland, November 1999. ①
(exp.)
13. M. Auweter-Kurtz, G. Herdrich, H.L. Kurtz, T. Laux, E. Schreiber, T. Wegmann, *Ground Testing Facilities for TPS Qualification at the Institut für Raumfahrtsysteme*, 12th European Aerospace Conference, 3rd European Conference on Space Transportation Systems, Paris, Nov./Dec. 1999. ①
(exp.)
14. G. Herdrich, M. Auweter-Kurtz, H. Kurtz, T. Laux, E. Schreiber, *Investigation of the Inductively Heated Plasmagenerator IPG3 using Injection Rings of different Geometries*, 21st AIAA Advanced Measurement Technology and Ground Testing Conference, Denver, CO, Paper AIAA-2000-2445, June 2000. ①, ②
(exp.)
15. G. Herdrich, M. Auweter-Kurtz, M. Hartling, T. Laux: *PYREX-KAT38, Temperature Measurement System for the X-38 Nose Structure TPS*, Proceedings of the 2nd Int. Symposium Atmospheric Reentry Vehicles and Systems, Arcachon, Frankreich, March 2001. ①, ⑤
(exp. / theo.)
16. G. Herdrich, M. Auweter-Kurtz, *Characterization of Inductively Heated Plasma Generators using measured Data in Combination with a Simple Analytical Model*, Paper AIAA-2001-3012, 35th Thermophysics Conference, *Invited Session*, Anaheim, CA, USA, June 2001. ①
(exp. / theo.)
17. M. Auweter-Kurtz, G. Herdrich, K. Komurasaki, T. Laux, *Probe Measurements and Laser Absorption Spectroscopy on the IRS IPG3 Plasma Plume*, Paper AIAA-2001-2732, 35th Thermophysics Conference, Anaheim, CA, USA, June 2001. ①
(exp.)
18. M. Auweter-Kurtz, P. Endlich, G. Herdrich, H. Kurtz, T. Laux, S. Löhle, E. Schreiber, T. Wegmann, M. Winter, *Ground Testing Facilities for TPS Qualification at the Institut für Raumfahrtsysteme*, Proceedings of the 4th European Symposium on Aerothermodynamics for Space Applications, Capua, Italien, October 2001, ESA SP-487, pp 655-663, March 2002. ①
(exp.)
19. G. Herdrich, M. Auweter-Kurtz, A. Desportes, P. Endlich, H. Kurtz, T. Laux, B. van Ootegem, P. Vervisch, *Experiments at the Inductively Heated Plasma Wind Tunnels of CORIA and IRS*, by Institut für Raumfahrtsysteme (IRS), Stuttgart, Germany and Interprofessional Aerothermochemistry Research Complex (CORIA), Université de Rouen, Frankreich, Paper AIAA-2002-2711, 22nd AIAA Aerodynamic Measurement Technology and Ground Testing Conference, St. Louis, MI, USA, June 2002. ①
(exp.)

20. P. Endlich, M. Auweter-Kurtz, G. Herdrich, *Mars Entry Simulation with Dust Using an Inductively Heated Generator*, Paper AIAA-2002-3237, 22nd AIAA Aerodynamic Measurement Technology and Ground Testing Conference, St. Louis, MI, USA, 24-26 June 2002. ①, ④ (exp.)
21. T. Laux, G. Herdrich, M. Auweter-Kurtz, *Oxidation Behavior of Sintered Silicon Carbide in Various Plasma Wind Tunnels*, Proceedings of the 4th European Workshop on Hot Structures and Thermal Protection Systems for Space Vehicles (26th-29th Nov. 2002), Palermo, Italien, ESA SP-521, pp. 377-389, April 2003. ① (exp.)
22. G. Herdrich, M. Auweter-Kurtz, M. Fertig, T. Laux, Th. Wegmann, M. Winter, *Aerothermodynamic Flight Experiments at IRS – In Situ Research of Atmospheric Entries*, DGLR Jahrestagung, DGLR-JT2002-178, Stuttgart, Deutschland, September 2002. ① (exp.)
23. G. Herdrich, M. Auweter-Kurtz, P. Endlich, T. Laux, *Simulation of Atmospheric Entry Manoeuvres using the Inductively Heated Plasma Wind Tunnel PWK3*, DGLR Jahrestagung, DGLR-JT2002-254 Stuttgart, Deutschland, September 2002. ① (exp.)
24. Ch. Röttger, M. Bickel, M. Dogili, O. Romberg, W. Fischer, R. Graue, G. Herdrich, M. Auweter-Kurtz, *Structure and Material Technologies for RLV*, MAN Technologie AG, Augsburg, OHB System, Bremen, Astrium, Bremen, Kayser-Threde, München, Universität Stuttgart (IRS), Stuttgart, Germany, Proceedings of the 3rd Int. Symposium Atmospheric Reentry Vehicles and Systems, Arcachon, Frankreich, March 2003. ①, ④, ⑤ (exp. / num.)
25. G. Herdrich, M. Auweter-Kurtz, M. Fertig, T. Laux, S. Pidan, U. Schöttle, Th. Wegmann, M. Winter, *Atmospheric Entry Experiments at IRS*, Proceedings of the 3rd Int. Symposium Atmospheric Reentry Vehicles and Systems, Arcachon, Frankreich, March 2003. ① (exp. / num.)
26. G. Herdrich, M. Auweter-Kurtz, M. Fertig, T. Laux, S. Pidan, U. Schöttle, Th. Wegmann, M. Winter, *Atmospheric Entry Simulation Capabilities at IRS*, Proceedings of the 3rd Int. Symposium Atmospheric Reentry Vehicles and Systems, Arcachon, Frankreich, March 2003. ① (exp. / num.)
27. G. Herdrich, M. Auweter-Kurtz, P. Endlich, T. Laux, *Simulation of Atmospheric Entry Manoeuvres Using the Inductively Heated Plasma Wind Tunnel PWK3*, Proceedings of the 3rd Int. Symposium Atmospheric Reentry Vehicles and Systems, Arcachon, Frankreich, March 2003. ① (exp.)
28. P. Endlich, M. Auweter-Kurtz, G. Herdrich, S. Laure, *Simulation of Mars Entry conditions including Dust Particles*, Proceedings of the 3rd Int. Symposium Atmospheric Reentry Vehicles and Systems, Arcachon, Frankreich, March 2003. ① (exp.)
29. N. Karrer, P. Hofer-Noser, G. Herdrich, M. Auweter-Kurtz, *Isolated current probe for continuous monitoring of AC currents of high amplitude and high frequency*, 10th European Conference on Power Electronics and Applications, Toulouse, France, September 2003. ②, ④ (exp. / theo.)
30. M. Matsui, G. Herdrich, M. Auweter-Kurtz, K. Komurasaki, *Combined Laser Absorption Spectroscopy and Probe Measurements in Inductively Heated High Enthalpy Plasmas*, Paper AIAA-2003-3898, 37th Thermophysics Conference, Orlando, FL, USA, June 2003. ① (exp.)
31. S. Löhle, M. Auweter-Kurtz, G. Herdrich, T. Laux, *LIF Measurements of NO in N₂/O₂ and N₂/CO₂ Plasma Flows*, Paper AIAA-2003-3487, 37th Thermophysics Conference, Orlando, FL, USA, June 2003. ① (exp. / theo.)
32. P. Endlich, M. Auweter-Kurtz, G. Herdrich, S. Löhle, M. Winter, *The inductively heated Plasma Wind Tunnel PWK3 as a Means for Emission Experiments to rebuilt radiation Test Cases*, ESTEC Plasma Radiation Workshop, Portugal, Lissabon, Oct. 2003. ① (exp. / num.)

33. F. Harms, M. Auweter-Kurtz, G. Herdrich, *Characterization of an Inductively Heated Plasma Source by Variation of the Operating Frequency to simulate Atmospheric Entry Manoeuvres*, DGLR Jahrestagung 2003, München, DGLR-2003-110, Nov. 2003. (exp. / theo.) ①
34. S. Pidan, M. Auweter-Kurtz, G. Herdrich, T. Laux, *Experimentelle Erprobung eines katalytizitätsbasierten Sensorsystems für die Wärmestromdichtemessungen im Plasmawindkanal SCIROCCO*, DGLR Jahrestagung 2003, München, DGLR-2003-110, Nov. 2003. (exp.) ①
35. M. Auweter-Kurtz, D. Greuel, H. Hald, G. Herdrich, M. Ortelt, N. Pegemanyfar, *A Pyrometric Method to Measure Wall Temperatures of Ceramic Rocket Engine Combustion Chambers*, Posterbeitrag IAF Kongress, Bremen, Oct./Nov. 2003. (exp. / theo.) ③, ④
36. T. Laux, G. Herdrich, M. Auweter-Kurtz, IRS Universität Stuttgart, *Oxidation Behavior of Sintered Silicon Carbide in Various Plasma Wind Tunnels*, 4th European Workshop 'Hot Structures and Thermal Protection Systems for Space Vehicles', Palermo, Italien, Nov. 2002 (ESA SP-521, April 2003, pp. 377-389). (exp. / theo.) ①
37. M. Matsui, G. Herdrich, K. Komurasaki, M. Auweter-Kurtz, *Laser Absorption Spectroscopy in Inductive Plasma Generator Flows*, 42nd AIAA Aerospace Sciences Meeting and Exhibit, AIAA Paper AIAA 2004-1222, Reno, 2004. (exp.) ①
38. H. Böhrk, J. Weber, S. Laure, G. Herdrich, M. Auweter-Kurtz, *Experimental Investigation of the Two-Stage Plasma Thruster ATTILA*, 4th International Spacecraft Propulsion Conference, Chia Laguna, Sardinien, Italien, June 2004. (exp.) ②, ③
39. H. Böhrk, G. Herdrich, M. Auweter-Kurtz, J. Weber, S. Laure, *Experimental Investigation of the Plasma Jet Generated by ATTILA*, Paper AIAA 2004-3642, 40th AIAA/ASME/ASEE Joint Propulsion Conference and Exhibit, Fort Lauderdale, FL, USA, 11.-14. July 2004. (exp.) ②, ③
40. M. Auweter-Kurtz, M. Fertig, G. Herdrich, S. Pidan, M. Winter, *Advanced In-Flight Sensor Systems for Atmospheric Entry Maneuvres*, Paper AIAA 2004-2169, 37th AIAA Thermophysics Conference, Portland, Oregon, USA, June/July 2004. (exp. / num.) ①
41. G. Herdrich, M. Auweter-Kurtz, *Development and Characterization of Inductively Heated Plasma Generators for Atmospheric Entry Simulations*, Paper AIAA 2004-2503, 24th AIAA Aerodynamic Measurement Technology and ground Testing Conference, Portland, Oregon, USA, June/July 2004. (exp. / theo.) ①, ②
42. G. Herdrich, S. Löhle, M. Auweter-Kurtz, P. Endlich, M. Fertig, S. Pidan, *IRS Ground-Testing Facilities: Thermal Protection System Development, Code validation and Flight Experiment Development*, Paper AIAA 2004-2596, 24th AIAA Aerodynamic Measurement Technology and ground Testing Conference, Portland, Oregon, USA, June/July 2004. (exp.) ①
43. S. Pidan, M. Auweter-Kurtz, G. Herdrich, M. Fertig, *Determination of Recombination Coefficients and Spectral Emissivity of Thermal Protection Materials*, Paper AIAA 2004-2274, 37th AIAA Thermophysics Conf., Portland, Oregon, USA, June/July 2004. (exp. / theo.) ①
44. G. Herdrich, M. Auweter-Kurtz, M. Fertig, S. Löhle, S. Pidan, *Oxidation Behaviour of SiC-based Thermal Protection System Materials using newly developed Probe Techniques*, AIAA-2004-2173, 37th AIAA Thermophysics Conference, Portland, OR, USA, June/July 2004. (exp. / num.) ①
45. G. Herdrich, M. Auweter-Kurtz, M. Fertig, S. Löhle, S. Pidan, *Catalytic and Oxidative Behavior of Silicon Carbide based Materials for Thermal Protection Materials*, Institut für Raumfahrtssysteme (IRS), University of Stuttgart, Germany, T. Laux, Institut für Bauweisen und Konstruktionsforschung (IBK), DLR Stuttgart, Germany, IAC-04-I.3.a.09, 55th Internat. Astronautical Congress, Vancouver, Canada (Paper 381), 4.-8. Oct. 2004. (exp. / theo.) ①

46. S. Löhle, M. Auweter-Kurtz, G. Herdrich, *Bestimmung der lokalen Stickstoffmonoxidichte vor Hitzeschutzmaterialien mit Hilfe von laserinduzierten Fluoreszenzmessungen*, Institut für Raumfahrtssysteme“, Deutscher Luft- und Raumfahrtkongress 2004, DGLR-JT2004-206 Dresden, Sept. 2004. ①
(exp. / theo.)
47. S. Pidan, M. Auweter-Kurtz, M. Fertig, G. Herdrich, Institut für Raumfahrtssysteme, T. Laux, DLR Stuttgart, Ulrich Trabant, EADS Bremen, *Catalytic Behaviour of Candidate Thermal Protection Materials*, 5th ESA/ESTEC Aerothermodynamics Conference, Nov. 2004, (ESA SP-563, Feb. 2005). ①
(exp. / theo.)
48. G. Herdrich, M. Auweter-Kurtz, M. Fertig, S. Löhle, S. Pidan, M. Winter, *Present Design of the Flight Instrumentations PYREX, PHLUX and RESPECT for the Capsule EXPERT*, 5th ESA/ESTEC Aerothermodynamics Conference, Nov. 2004, (ESA SP-563, Feb. 2005). ①, ⑤
(exp. / num.)
49. S. Löhle, G. Herdrich, M. Auweter-Kurtz, and M. Eberhart, *Experimental Possibilities for Local Enthalpy Estimation in IRS Plasma Wind Tunnels*; 5th European Symposium on Aerothermodynamics for Space Vehicles, Nov. 2004, Cologne, Germany; (ESA SP-563, Feb. 2005). ①, ②
(exp. / num.)
50. M. Matsui, K. Komurasaki G. Herdrich and M. Auweter-Kurtz, *Temporally Resolved Measurement of Enthalpy in Inductively Heated Plasma Generator Flows*, Proceedings of the 4th International Symposium “Atmospheric Reentry Vehicles and Systems”, Arcachon, Frankreich, March 2005. ①
(exp. / theo.)
51. G. Herdrich, S. Löhle, S. Pidan, M. Auweter-Kurtz, M. Fertig, *Advanced Pyrometric In-flight Sensor Systems for EXPERT*, Proceedings of the 4th International Symposium “Atmospheric Reentry Vehicles and Systems”, Arcachon, Frankreich, March 2005. ①, ⑤
(exp.)
52. M. Winter, M. Auweter-Kurtz, M. Fertig, D. Haag, G. Herdrich, M. Hartling, H. Kurtz, A. Nawaz, *Entwicklung von Magnetoplasmadynamischen Antriebssystemen am IRS*, DGLR Tagung, Friedrichshafen, 2005/09/26 – 29. ③
(exp. / num.)
53. G. Herdrich, M. Auweter-Kurtz, M. Fertig, S. Löhle, S. Pidan, M. Winter, *Design of the in-flight Sensor Systems PYREX, PHLUX and RESPECT for the European Capsule EXPERT*, European Conference for Aerospace Sciences (EUCASS), Moskau, July 2005. ①, ⑤
(exp. / num.)
54. G. Herdrich, S. Pidan, M. Auweter-Kurtz, M. Fertig, *Determination of Candidate TPS material Recombination Coefficients Using an Inductively Heated Plasma Wind Tunnel*, European Conference for Aerospace Sciences (EUCASS), Moskau, July 2005. ①
(exp. / theo.)
55. A. Nawaz, M. Auweter-Kurtz, G. Herdrich, H. Kurtz, *Experimental Setup of a Pulsed MPD Thruster at IRS*, European Conference for Aerospace Sciences (EUCASS), Moskau, July 2005. ③
(exp.)
56. A. Nawaz, M. Auweter-Kurtz, G. Herdrich, H.L. Kurtz, *Investigation and Optimization of an Instationary MPD Thruster at IRS*, IEPC-2005-208, 29th Internat. Electric Propulsion Conference, Princeton University, 31.10-4.11.2005. ③
(exp. / theo.)
57. H. Böhrk, D. Petkow, G. Herdrich, M. Auweter-Kurtz and H. Kurtz, *Arcjet Stage Investigation and Inductive Hydrogen Heating in the TIHTUS Engine*, IEPC-2005-275, 29th Internat. Electric Propulsion Conference, Princeton University, 31.10-4.11.2005. ②, ③
(exp.)
58. G. Herdrich, M. Auweter-Kurtz, Institut für Raumfahrtssysteme (IRS) and Steinbeis Transfer Centre Plasma and Space Technology (STC PRT), *Inductively Heated Plasma Sources for Technical Applications*, Proceedings of ISAPS 2005 “Advances in Applied Plasma Science”, ISBN 4-9900642-4-8, Vol. 5, 2005, The 5th International Symposium on Applied Plasma Science (ISAPS '05), Hawaii, USA, 26th – 30th September, 2005. ②, ④
(exp. / theo.)

59. G. Herdrich, M. Auweter-Kurtz, M. Fertig, A. Nawaz, D. Petkow, Institut für Raumfahrtssysteme (IRS) and Steinbeis Transfer Centre Plasma and Space Technology (STC PRT), *MHD Flow Control for Plasma Technology Applications*, Proceedings of ISAPS 2005 “Advances in Applied Plasma Science”, ISBN 4-9900642-4-8, Vol. 5, 2005, The 5th International Symposium on Applied Plasma Science (ISAPS '05), Hawaii, USA, 26th – 30th September, 2005. ② (exp. / theo.)
60. G. Herdrich, M. Auweter- Kurtz, M. Fertig, W. Fischer, J.-M. Muylaert, S. Pidan, M. Schüßler, U. Trabant, *Catalysis of TPS Materials for EXPERT TPS Design and Catalysis based In-flight Instrumentations*, 5th European Workshop on Thermal Protection Systems and Hot Structures, May 2006, Noordwijk, Niederlande, ESA SP-631, August 2006. ① (exp.)
61. G. Herdrich, M. Auweter-Kurtz, H. Böhrk, M. Fertig, S. Löhle, *Test Facilities for high Enthalpy Planetary Entry Simulation*, 5th European Workshop on Thermal Protection Systems and Hot Structures, May 2006, Noordwijk, Niederlande, ESA SP-631, August 2006. ① (exp.)
62. M. Schüßler, M. Auweter-Kurtz, G. Herdrich, S. Pidan, *Characterization of Candidate Materials for the catalytic re-entry Experiment PHLUX on EXPERT*, 5th European Workshop on Thermal Protection Systems and Hot Structures, Noordwijk, The Netherlands, May 2006, ESA SP-631, August 2006. ①, ⑤ (exp. / theo.)
63. G. Herdrich, M. Auweter- Kurtz, M. Fertig, M. Winter, M. Schüßler, *Advanced Temperature and Heat Flux Sensor Systems for Atmospheric Entry Vehicle*, in **Temperatur 2006 – Verfahren und Geräte in der Temperatur- und Feuchtemesstechnik**, ISBN 3-9805741-7-2, May 2006, Berlin. ① (exp. / theo.)
64. M. Auweter-Kurtz, S. Caristia, M. Fertig, F. de Fillipis, G. Herdrich, S. Löhle, Y. Morino, S. Pidan, M. Schüssler, *Determination of the Local Dissociation Degree for HYFLEX Nose Structure tests in SCIROCCO*, 25th Aerodynamic Measurement Technology and Ground Testing Conference, June 2006, San Francisco, California, USA. ① (exp. / theo.)
65. A. Knapp, M. Auweter-Kurtz, M. Fertig, G. Herdrich, S. Löhle, *Investigation of a magnetic Probe to influence weakly ionized Plasma*, AIAA 2006-3077, 37th AIAA Plasmadynamics and Lasers Conference, San Francisco, Cal., June 2006. ②, ④ (exp. / theo.)
66. G. Herdrich, M. Auweter-Kurtz, M. Fertig, S. Lein, A. Preci, M. Schuessler, and M. Winter, *The In-Flight Sensor Systems PYREX, PHLUX and RESPECT for the Capsule EXPERT*, AIAA 2006-3418, 9th AIAA/ASME Joint Thermophysics and Heat Transfer Conference, San Francisco, Cal., June 2006. ①, ⑤ (exp. / theo.)
67. M. Fertig, S. Schäff, G. Herdrich, and M. Auweter-Kurtz, *Influence of Chemical Accommodation on Re-entry Heating and Plasma Wind Tunnel Experiments*, AIAA 2006-3816, 9th AIAA/ASME Joint Thermophysics and Heat Transfer Conference, San Francisco, Cal., June 2006. ① (num.)
68. A. Preci, S. Lein, M. Schüssler, M. Auweter-Kurtz, M. Fertig, G. Herdrich, and M. Winter, *Numerical Simulation and IRS Instrumentation Design for EXPERT*, AIAA 2006-3827, 25th AIAA Aerodynamic Measurement Technology and Ground Testing Conference, San Francisco, Cal., June 2006. ① (num.)
69. A. Nawaz, M. Auweter-Kurtz, G. Herdrich, H. Kurtz, *Impulse Measurements and Thermal Investigation of SIMP-LEX*, AIAA 2006-4855, 42nd Joint Propulsion Conference & Exhibit, Sacramento, July 2006. ③ (exp.)
70. C.O. Asma, D. Paolucci, Chazot, O., Gülhan, A., Esser, B., Herdrich, G., Knapp, A., Auweter-Kurtz, M., *Design of a new calorimetric heat flux probe*, 1st International ARA Days Atmospheric Reentry Systems Missions and Vehicles, Arcachon, France, 3.-5. July, 2006. ① (exp.)

71. G. Herdrich, R. Laufer, M. Gräßlin, H.-P. Röser, *Key Technologies for Interplanetary Return Missions*, Institute of Space Systems (IRS), Universität Stuttgart, Pfaffenwaldring 31, 70569 Stuttgart, Germany, DGLR To Moon and Beyond Conference, Bremen, Germany, March 2007. **①, ③, ⑤**
(exp. / num. / theo.)
72. M. Matsui¹, G. Herdrich^{2, 3}, H. Takayanagi¹, K. Komurasaki², Y. Arakawa¹, M. Auweter-Kurtz⁴, *Laser Diagnostics of Inductively Heated Oxygen, Nitrogen and Air Flows*, AIAA-2007-4408, ¹Department of Aeronautics and Astronautics, The University of Tokyo, Japan, ²Department of Advanced Energy, Graduate School of Frontier Sciences, The University of Tokyo, Japan, ³Institut für Raumfahrtsysteme, Universität Stuttgart, Pfaffenwaldring 31, 70569 Stuttgart, Germany, ⁴Universität Hamburg, Germany, 37th AIAA Fluid Dynamics Conference and Exhibit Agenda, Miami, Florida, USA, June 2007. **①**
(exp. / theo)
73. G. Herdrich^{1, 2}, H. Böhrk¹, M. Fertig¹, M. Winter¹, M. Auweter-Kurtz³, *High Enthalpy Planetary Entry Simulation using Ground Test Facilities*, AIAA-2007-3907, ¹Institut für Raumfahrtsysteme, Universität Stuttgart, Pfaffenwaldring 31, 70569 Stuttgart, Germany, ²Department of Advanced Energy, Graduate School of Frontier Sciences, The University of Tokyo, Japan, ³Universität Hamburg, Germany, 39th AIAA Thermophysics Conference, Miami, Florida, USA, June 2007. **①, ④**
(exp.)
74. A. Preci¹, G. Herdrich^{1, 2}, M. Fertig¹, M. Auweter-Kurtz³, *Combined Analysis of Catalysis Influenced Heat Flux on PHLUX Sensor System Samples*, AIAA-2007-3900, ¹Institut für Raumfahrtsysteme, Universität Stuttgart, Germany, ²Department of Advanced Energy, Graduate School of Frontier Sciences, Graduate School of Frontier Sciences, The University of Tokyo, Japan, Universität Hamburg, Germany, 39th AIAA Thermophysics Conference, Miami, Florida, USA, June 2007. **①, ②**
(exp./ theo. / num.)
75. Markus Fertig¹, Georg Herdrich^{1, 2}, Monika Auweter-Kurtz³, *SiO₂ Catalysis Modeling for CFD Calculations*, AIAA-2007-4257, ¹Institut für Raumfahrtsysteme, Universität Stuttgart, Germany, ²Department of Advanced Energy, Graduate School of Frontier Sciences, Graduate School of Frontier Sciences, The University of Tokyo, Japan, Universität Hamburg, Germany, 39th AIAA Thermophysics Conference, Miami, Florida, USA, June 2007. **①**
(theo. / num.)
76. M. Winter¹, G. Herdrich^{1, 2}, *Spectroscopic Observation of the STARDUST Re-Entry in the Near UV*, AIAA-2007-4050, ¹Institut für Raumfahrtsysteme, Universität Stuttgart, Germany, ²Department of Advanced Energy, Graduate School of Frontier Sciences, Graduate School of Frontier Sciences, The University of Tokyo, Japan, 39th AIAA Thermophysics Conference, Miami, Florida, USA, June 2007. **①**
(exp./ theo./ num.)
77. D. Petkow¹, M. Fertig¹, G. Herdrich^{1, 2}, M. Auweter-Kurtz³, *The Ionization and Recombination Model within a 3D PIC-DSMC-FP Code*, AIAA-2007-4261, ¹Institut für Raumfahrtsysteme, Universität Stuttgart, Germany, ²Department of Advanced Energy, Graduate School of Frontier Sciences, The University of Tokyo, Japan, ³Universität Hamburg, Germany, 37th AIAA Fluid Dynamics Conference and Exhibit, Miami, FL, 25. – 28. June 2007. **①, ②, ③**
(theo./ num.)
78. A. Knapp¹, M. Fertig¹, D. Haag¹, G. Herdrich^{1, 2}, M. Auweter-Kurtz³, *Investigation of the Interaction between a Magnetic Probe Body and Argon Plasma*, AIAA-2007-4133, ¹Institut für Raumfahrtsysteme, Universität Stuttgart, Germany, ²Department of Advanced Energy, Graduate School of Frontier Sciences, The University of Tokyo, Japan, ³Universität Hamburg, Germany, 37th AIAA Fluid Dynamics Conference and Exhibit, Miami, FL, 25. – 28. June 2007. **①, ②, ④**
(exp./ theo./ num.)
79. D. Bock¹, G. Herdrich¹, S. Lein¹, H.-P. Röser¹ and M. Auweter-Kurtz², *Overview of Emission Spectroscopic Measurement of an Ammonia Arcjet Plasma Plume*, ¹Institut für Raumfahrtsysteme, Universität Stuttgart, Germany, ²Universität Hamburg, Germany, 2nd European Conference for Aero-Space Sciences, Brüssel, Belgien, 1st-6th July 2007. **③**
(exp./ theo.)

80. A. Preci¹, G. Herdrich^{1, 2}, M. Gräßlin¹, H.-P. Röser¹, M. Auweter-Kurtz³, *The Combined Sensor System COMPARE for Atmospheric Entry Missions*, ¹Institut für Raumfahrtssysteme, Universität Stuttgart, Germany, ²Department of Advanced Energy, Graduate School of Frontier Sciences, Graduate School of Frontier Sciences, The University of Tokyo, Japan, ³Universität Hamburg, Germany, 2nd European Conference for Aero-Space Sciences, Brüssel, Belgien, 1st-6th July 2007. **1, 4** (exp./ theo.)
81. G. Herdrich^{1, 2}, M. Fertig¹, M. Winter¹, S. Lein¹, A. Preci¹, M. Auweter-Kurtz³, *Measurement Systems for Atmospheric Entry Missions at IRS*, ¹Institut für Raumfahrtssysteme, Universität Stuttgart, Germany, ²Department of Advanced Energy, Graduate School of Frontier Sciences, The University of Tokyo, Japan, ³Universität Hamburg, Germany, 2nd European Conference for Aero-Space Sciences, Brüssel, Belgien, 1st-6th July 2007. **1, 5** (exp./ theo./ num.)
82. D. Bock¹, G. Herdrich^{1, 2}, H. L. Kurtz¹, H.-P. Röser¹, M. Auweter-Kurtz³, *An Advanced Ammonia Propellant Feed System for the Thermal Arcjet TALOS*, AIAA-2007-5186, ¹Institut für Raumfahrtssysteme, Universität Stuttgart, Germany, ²Department of Advanced Energy, Graduate School of Frontier Sciences, The University of Tokyo, Japan, ³Universität Hamburg, Germany, 43rd AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, Cincinnati, Oh, USA 8th – 11th July 2007. **3** (exp./ theo.)
83. A. Nawaz¹, U. Bauder¹, H. Böhrk¹, G. Herdrich^{1, 2}, Monika Auweter-Kurtz³, *Electrostatic Probe and Camera Measurements for Modeling the IMPD SIMP-LEX*, AIAA-2007-5280, ¹Institut für Raumfahrtssysteme, Universität Stuttgart, Germany, ²Department of Advanced Energy, Graduate School of Frontier Sciences, The University of Tokyo, Japan, ³Universität Hamburg, Germany, 43rd AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, Cincinnati, Oh, USA 8th – 11th July 2007. **3** (exp./ theo./ num.)
84. A. Preci¹, G. Herdrich^{1, 2}, M. Gräßlin¹, H.-P. Röser¹, M. Auweter-Kurtz³, *COMPARE, a Combined Sensor System for Re-entry Missions*, ¹Institut für Raumfahrtssysteme, Universität Stuttgart, Germany, ²Department of Advanced Energy, Graduate School of Frontier Sciences, Graduate School of Frontier Sciences, The University of Tokyo, Japan, ³Universität Hamburg, Germany, 26th International Symposium on Shock Waves (ISSW 26), 2007/07/15-20. **1, 2, 4** (exp. / theo.)
85. D. Petkow¹, G. Herdrich^{1, 2}, F. Fertig¹, M. Auweter-Kurtz³, *The 2d DSMC Code LasVegas for Plasma Technological Applications*, ¹Institut für Raumfahrtssysteme, Universität Stuttgart, Germany, ²Department of Advanced Energy, Graduate School of Frontier Sciences, Graduate School of Frontier Sciences, The University of Tokyo, Japan, ³Universität Hamburg, Germany, 6th International Symposium on Applied Plasma Science, Nikko, Japan, 24th-28th September 2007. **2, 4** (theo./ num.)
86. G. Herdrich^{1, 2}, S. Kraus¹, F. Fertig¹, D. Petkow¹, M. Auweter-Kurtz³, *Magnetic Acceleration Plasma Facility for Plasma Shock Peening and Plasma Decoating Processes*, ¹Institut für Raumfahrtssysteme, Universität Stuttgart, Germany, ²Department of Advanced Energy, Graduate School of Frontier Sciences, Graduate School of Frontier Sciences, The University of Tokyo, Japan, ³Universität Hamburg, Germany, 6th International Symposium on Applied Plasma Science, Nikko, Japan, 24th-28th September 2007. **2, 4** (exp./ num.)
87. A. Knapp¹, G. Herdrich^{1, 2}, M. Auweter-Kurtz³, *Magnetic Influence on Argon Plasma flow using Permanent Magnets*, ¹Institut für Raumfahrtssysteme, Universität Stuttgart, Germany, ²Department of Advanced Energy, Graduate School of Frontier Sciences, Graduate School of Frontier Sciences, The University of Tokyo, Japan, ³Universität Hamburg, Germany, 6th International Symposium on Applied Plasma Science, Nikko, Japan, 24th – 28th September 2007. **2, 4** (exp./ theo.)
88. D. Petkow., G. Herdrich, R. Laufer, and H.-P. Röser, *Key Technologies for Fusion-* **3, 4, 5**

based Space Propulsion: A Case Study, 58th International Astronautical Congress (in (theo.)
Vorbereitung), Hyderabad, India, 24th – 28th September 2007.

Internal Reports

1. G. Herdrich, S. Lenzner, *Phänomenologische Beschreibung des HF-Generators mit Hilfe eines Transformatormodells*, Institut für Raumfahrtssysteme, Universität Stuttgart, Interner Bericht, IRS-97-IB4, 1997. ①
(theo.)
2. G. Herdrich, *Datenbankbasierte Berechnung der PYREX-Übertragungsfunktion*, Institut für Raumfahrtssysteme, Universität Stuttgart, Interner Bericht, IRS-98-IB9, 1998. ①
(exp. / theo.)
3. G. Herdrich, *Analytische Modelle zur Simulation des induktiv beheizten Plasmagenerators IPG3*, Institut für Raumfahrtssysteme, Universität Stuttgart, Interner Bericht, IRS-2000-IB5, 2000. ①
(exp. / theo.)
4. G. Herdrich, C. Julien, *Significance of N_2 / O_2 Dissociation and NO formation in air plasma during Re-entry*, Institut für Raumfahrtssysteme, Universität Stuttgart, Ecole de Chimie Polymère et Matériau, Strasbourg, Frankreich, Interner Bericht, IRS-2000-IB6, 2000. ①
(exp. / theo.)
5. G. Herdrich, T. Laux, *Experimente am induktiv beheizten Plasmawindkanal des CORIA*, Institut für Raumfahrtssysteme, Universität Stuttgart, Interner Bericht, IRS-2001-IB2, 2001. ①
(exp.)
6. G. Herdrich, P. Endlich, T. Laux, H. Kurtz, *Eine Prozedur zur Deaktivierung hochenthalper CO_2 -Plasmaströmungen in der induktiv beheizten Anlage PWK3*, Institut für Raumfahrtssysteme, Universität Stuttgart, Interner Bericht, IRS-2001-IB4, 2001. ①, ②
(exp. / theo.)
7. G. Herdrich, *Beschreibung von Ramsauerstoßquerschnitten zur Berechnung von Transportkoeffizienten*, Institut für Raumfahrtssysteme, Universität Stuttgart, Interner Bericht, IRS-2002-IB1, 2002. ①
(theo.)
8. G. Herdrich, L.-M. Rogement, *Estimation of Mach Number, Reynolds Number and Thermal Boundary Layer Thickness in Oxygen Plasma*, Institut für Raumfahrtssysteme, Universität Stuttgart, Ecole de Chimie Polymère et Matériau, Strasbourg, Frankreich, Interner Bericht, IRS-2002-IB2, 2002. ①
(exp. / theo.)
9. G. Herdrich, M. Auweter-Kurtz, M. Winter, *Stardust Overview*, Internal Report, PRT-2006-IB01 Steinbeis Transfercenter Plasma and Space Technology, IRS-2006-IB01 Institut für Raumfahrtssysteme, January 2006. ①
(exp. / theo.)
10. G. Herdrich^{1,2}, A. Knapp¹, K. Komurasaki², M. Matsui², H. Takayanagi², *Potential of the IRS Mini Pitot Probe for the Arc jet Facility at the Department of Advanced Energy, University of Tokyo*, ¹⁾ Institut für Raumfahrtssysteme, Universität Stuttgart, ²⁾ Department of Advanced Energy, Division of Transdisciplinary Science, Graduate School of Frontier Sciences, Universität Tokio, Japan, Internal Report 2007-IR01, Rev. 7, May 2007. ①
(exp. / theo.)

Reports on Industrial and Publicly Sponsored Contract Researches

1. M. Auweter-Kurtz, H. Habiger, G. Herdrich, G. Hilfer, H. Kurtz, Th. Wegmann, *Materials for Planetary Entry SEPCORE mock-up thermal test at the PWK1 Test Report*, Institut für Raumfahrtssysteme, IRS-96-P9, 1996. ① (exp.)
2. M. Auweter-Kurtz, H. Habiger, G. Herdrich, G. Hilfer, T. Laux, Th. Wegmann, *MAN-C/SiC Materialtests am Plasmawindkanal PWK1 im Rahmen des Vergleichs magnetoplasmadynamisch und thermisch beheizter Plasmawindkanäle*, Test Report, Institut für Raumfahrtssysteme, IRS-97-P13, 1997. ① (exp.)
3. J. Burkhardt, M. Fertig, H. Frühholz, G. Herdrich, G. Koppenwallner, R. Müller-Eigner, *Flugauswertung der MIRKA-Mission*, Abschlußbericht IRS-98P16, DLR Förderkennzeichen 50 IO 9821, Universität Stuttgart, Institut für Raumfahrtssysteme, Dez. 1998. ① (exp. / num.)
4. H.-G. Bernhardt, K. Kemmerle, M. Auweter-Kurtz, G. Herdrich, *PYREX-HX Initiation Study: Thermal Assessment and Installation Concept*, PYREX-RP-KT-001 / IRS 99-P-1, Fa. Kayser-Threde, Institut für Raumfahrtssysteme, 1999. ①, ④ (exp. / num.)
5. M. Auweter-Kurtz, M. Fertig, H.-H. Frühauf, G. Herdrich, T. Laux, *FESTIP Technology Developments in Aerothermodynamics for Reuseable Launch Vehicles Phase 2*, Final Report, Institut für Raumfahrtssysteme, 1999. ① (exp. / num.)
6. G. Herdrich, M. Auweter-Kurtz, *PYREX-KAT38 Engineering Model Development (TETRA WP 21440)*, Final Report, TET-IRS-21-TN-5010, IRS-02-P06, Institut für Raumfahrtssysteme, 2002. ① (exp. / theo.)
7. G. Herdrich, M. Auweter-Kurtz, *Experimentelle Untersuchung induktiver Radiofrequenz-Plasmageneratoren und deren Gasströmungen zur Simulation des Atmosphärenwiedereintritts von Raumflugkörpern*, Zwischenbericht zum Forschungsvorhaben Au 85 / 15-1, June 2003. ① (exp. / theo.)
8. G. Herdrich, M. Auweter-Kurtz, *Experimentelle Untersuchung induktiver Radiofrequenz-Plasmageneratoren und deren Gasströmungen zur Simulation des Atmosphärenwiedereintritts von Raumflugkörpern*, Endbericht IRS-04-P4 zum Forschungsvorhaben Au 85 / 15-1, Dez. 2004. ① (exp. / theo.)
9. M. Winter, G. Herdrich, *Spektral aufgelöste Beobachtung des Wiedereintritts der STARDUST-Kapsel*, Application Note, Andor Technology, LOT-Oriel Gruppe Europe, www.lot-oriel.com/site/site_down/cc_stardust_dede02.pdf, 2007. ① (exp. / num.)

More than 10 industrial reports within the american-european project X38.

More than 15 reports on the european capsule project EXPERT (phases B and C)

Lectures (invited)

1. G. Herdrich, *Experimente während des Fluges*, Vortrag im Rahmenprogramm der DFG Ausstellung „Der neue Weg ins All-Raumtransporter der nächsten Generation“, Haus der Wirtschaft, Landesgewerbeamt Baden-Württemberg, Stuttgart, 04.12.2002-28.02.2003. ① (exp. / num.)
2. G. Herdrich, *Entwicklung und Qualifikation von Wiedereintrittssensoren für die Betriebszustandsüberwachung von Raumfahrzeugen*, Vortrag Abschlusskonferenz „Grundlagen für zukünftige zweistufige Raumtransportsysteme“ der SFB 253, 255, 259, 9. und 10. Okt. 2003. ① (exp. / theo.)
3. G. Herdrich, *Entwicklung von Messsystemen für den Atmosphäreneintritt von Raumflugkörpern*, Vortrag im Rahmen des Jahrs der Techni 2004, Ausstellung Virtuelle und Digitale Welten, Stuttgart, 25. Sept. – 1. Okt. 2004. ① (exp. / theo.)

4. G. Herdrich, *Interplanetares Reisen, Warum der Warpantrieb nicht funktioniert und welche Alternativen es gibt*, Vortrag Engineer's Night, Universität Duisburg, 20.10.2006. ③, ④
(exp. / theo.)
5. G. Herdrich, *Plasma Fluid Flow*, Sulzer Flow Simulation Workshop, Dez. 2006. ②, ④
(exp. / num.)

Patents / Inventions

1. G. Herdrich, M. Auweter-Kurtz, *Vorrichtung zur magnetischen Beeinflussung von Plasmen*, Patentoffenlegung im Entwurf, Nutzung des Patents durch die Universität Stuttgart (Anwaltskanzlei Hindennach, Leuze, Braig in Esslingen). ②, ④
(n. a.)
2. A. Nawaz¹, G. Herdrich¹, M. Schlipf², M. Auweter-Kurtz³, *Treibstofffördersystem für Langzeitmissionen von gepulsten instationären MPD Antrieben*, ¹Universität Stuttgart, ²ElringKlinger GmbH, ³Universität Hamburg, resultierend aus DuPont Plunkett Award, Erfindungsmeldung eingereicht, Patentoffenlegung im Entwurf. ③, ④
(n. a.)

List of Publications

(Steinbeistransferzentrum Plasma- und Raumfahrttechnologie, STZ PRT)

Internal reports

1. G. Herdrich, M. Auweter-Kurtz, *Behandlung gasförmiger und disperser Abfälle mit Hilfe eines geschlossenen induktiv beheizten Plasmareaktorsystems*, Steinbeistransferzentrum Plasma- und Raumfahrttechnologie, Interner Bericht, PRT-04-IB1, Dez. 2004. **2, 4** (exp. / theo.)
2. G. Herdrich, M. Auweter-Kurtz, M. Winter, *Stardust Overview, Internal Report*, PRT-2006-IB01 Steinbeis Transfer Center Plasma and Space Technology, IRS-2006-IB01 Institute of Space Systems, January 2006. **1** (exp.)
3. G. Herdrich, M. Auweter-Kurtz, *Treatment of Gaseous and Disperse Wastes using a closed Inductively Heated Plasma Reactor System*, Steinbeistransferzentrum Plasma- und Raumfahrttechnologie, Überarbeitung und Aktualisierung des internen Berichts PRT-04-IB01, Berichtsnummer PRT-06-IB2, August 2006. **2, 4** (exp. / theo.)

Lectures (invited)

1. G. Herdrich, *ELAN- Elektrische Raketenantriebe von Kindern*, Forum 3, Steinbeistag 2006, Haus der Wirtschaft, Landesgewerbeamt Baden-Württemberg, Stuttgart, 29 Sept. 2006. **4** (n. a.)

Patents

1. G. Herdrich, M. Auweter-Kurtz, *Vorrichtung und Verfahren zur Entsorgung von Abfallmaterialien*, Patentoffenlegung DE 10 2004 049 788 A1 2006.04.20. **2, 4** (n. a.)
2. G. Herdrich, M. Auweter-Kurtz, *Induktiver Plasmagenerator*, Patentoffenlegung DE 10 2004 054 826 A1 2006.05.24. **2, 4** (n. a.)

Note:

Common publications with IRS, see IRS List.

Scientific Journals: see numbers 11 and 12.

Proceedings / Contributions for Conferences: see numbers 58 and 59.