List of Publications

Author: Adam S. Pagan

Latest update: June 06, 2019

Peer-Reviewed Publications *(Total: 1)*

Robin A. Müller, Adam S. Pagan, Partho P. Upadhyay and Georg Herdrich: "Numerical Assessment of Magnetohydrodynamic Heat Flux Mitigation for Pico-Sized Entry Capsule Mockup", *Journal of Thermophysics and Heat Transfer*, accessed June 06, 2019. doi: https://doi.org/10.2514/1.T5679

Peer-Reviewed Conference Publications *(Total: 2, Prime Authorship: 1)*

A.S. Pagan, B. Massuti-Ballester, G. Herdrich: „Total and Spectral Emissivities of Demising Aerospace Materials", *Frontier of Applied Plasma Technology* **9**(1), pp.7-12, January 2016.

Conference Publications *(Total: 34, Prime Authorship: 12)*

D.A. Galla, G. Herdrich, K. Komurasaki, B. Massuti-Ballester, A. Momozawa, A.S. Pagan, R. Soga: "Investigation of Passive to Active Oxidation Transition on Ultra High Temperature Ceramics", IAC-18.C2.4.5X46341, 69th International Astronautical Congress (IAC), Bremen, Germany, 1-5 October 2018.

B. Massuti-Ballester, A.S. Pagan, G. Herdrich: "Oxidation and Heterogeneous Catalysis on Titanium Ti-6Al-4V in High-Enthalpy Flows", IAC-18-F1.2.3, 69th International Astronautical Congress (IAC), Bremen, Germany, 1-5 October 2018.

G. Herdrich, B. Massuti-Ballester, A.S. Pagan, S. Pavesi, P.P. Upadhyay: "IRS Research and Development Activities in the Field of Atmospheric Entry", IAC-17-C2-4.10, 68th International Astronautical Congress, Adelaide, Australia, 25-29 September, 2017.

S. Pavesi, A.S. Pagan, G. Herdrich: "Systematic Comparative Analysis of Existing Ablative Materials for Thermal Protection Systems' Design Optimization", IAC-17-C2-4.2, 68th International Astronautical Congress, Adelaide, Australia, 25-29 September, 2017.

M. Mione, B. Massuti-Ballester, A.S. Pagan, G. Herdrich: "Water-Cooled Adjustable Material Probe Design for the Evaluation of Transient Heat Fluxes of High Temperature Materials", IAC-17-C2-IP-6.41466, 68th International Astronautical Congress, Adelaide, Australia, 25-29 September, 2017.

A.S. Pagan, C. Zuber, B. Massuti-Ballester, G. Herdrich, H. Hald, S. Fasoulas: "The Ablation Performance and Dynamics of the Heat Shield Material ZURAM®", 2017-c-06, 31st International Symposium on Space Technology and Science, Matsuyama, Japan, 3 – 9 June, 2017.

A.S. Pagan, B. Massuti-Ballester, G. Herdrich, J.A. Merrifield, J.C. Beck, V. Liedtke, B. Bonvoisin: "Experimental Investigation of Material Demisability in Uncontrolled Earth Re-Entries", 2017-c-01, 31st International Symposium on Space Technology and Science, Matsuyama, Japan, 3 – 9 June, 2017.

B. Massuti-Ballester, A.S. Pagan, G. Herdrich: „Temperature-controlled Material Probe for High-Enthalpy Flows“, 2017-e-10, 31st International Symposium on Space Technology and Science, Matsuyama, Japan, 3 – 9 June, 2017.

V. Belser, J. Burgdorf, M. Ehresmann, D. Galla, M. Koller, M. Siedorf, V. Starlinger, S. Wizemann, G. Herdrich, A.S. Pagan, C. Montag, R. Laufer: „SIMON, an Electric Propulsion CubeSat Test Bed for CAPE“, 2017-f-022, 31st International Symposium on Space Technology and Science, Matsuyama, Japan, 3 – 9 June, 2017.

V. Starlinger, A. Behnke, J.-P. Baumann, V. Belser, M. Ehresmann, J. Franz, L. Friedrich, D. Galla, B. Gäßler, F. Grabi, R. Hießl, M. Koller, P. Kumpf, N. Müller, A. Papanikolaou, J. Rieser, F. Schäfer, V. Schöneich, H. Seiler, M. Siedorf, A. Stier, A. Tabelander, F. Vardar, S. Wizemann, A.S. Pagan, C. Montag, G. Herdrich und R. Laufer, „Increasing the Success of CAPE using Precursor Missions”, 11th IAA Symposium on Small Satellites for Earth Observation, Berlin, 24 – 28 April, 2017.

M. Dropmann, M. Ehresmann, A.S. Pagan, Q.H. Le, F. Romano, C. Montag, G. Herdrich: “Low Power Arcjet Application for End of Life Satellite Servicing”, 7th European Conference on Space Debris, ESA/ESOC, Darmstadt, Germany, April 2017.

A.S. Pagan, B. Massuti-Ballester, G. Herdrich, J.A. Merrifield, J.C. Beck, V. Liedtke, B. Bonvoisin: „Investigation of the Surface and Boundary Layer Composition for Demising Aerospace Materials”, 7th International Workshop on Radiation of High Temperature Gases in Atmospheric Entry, Stuttgart, Germany, 21 – 25 November, 2016.

D. Galla, V. Starlinger, J.-P. Baumann, A. Behnke, V. Belser, M. Ehresmann, J. Franz, L. Friedrich, B. Gäßler, F. Grabi, R. Hießl, M. T. Koller, P. Kumpf, N. Müller, A. Papanikolaou, J. Rieser, F. Schäfer, V. Schöneich, H. Seiler, M. Siedorf, A. Stier, A. Tabelander, S. Wizemann, F. Vardar, A.S. Pagan, C. Montag, G. Herdrich und R. Laufer, „MIRKA2-RX - A REXUS Flight Experiment in Preparation for the Atmospheric Entry CubeSat Mission CAPE“, 7th Nano-Satellite Symposium, Kamchia, Bulgaria, 17 – 20 October, 2016.

M.T. Koller, G. Herdrich, A.S. Pagan, S. Fasoulas, S. Klinkner, R. Laufer, C. Montag, das KSat Studententeam: „Aufbau des Elektroniksystems der MIRKA2 Mikrorückkehrkapsel und dessen Flugergebnisse auf REXUS 19“ (in German), 420341, Deutscher Luft- und Raumfahrtkongress, Braunschweig, Germany, 13 – 15 September, 2016.

A.S. Pagan, B. Massuti-Ballester, G. Herdrich: “Experimental Thermal Response and Demisability Investigations on five Aerospace Structure Materials under Simulated Destructive Re-Entry Conditions“, 46th Aerodynamic Measurement Technology and Ground Testing Conference, Washington, D.C., USA, 13 – 17 June, 2016.

S. Löhle, S. Fasoulas, G. Herdrich, T. Hermann, B. Massuti-Ballester, A. Meindl, A.S. Pagan, F. Zander: „The Plasma Wind Tunnels at the Institute of Space Systems: Current Status and Challenges“, 46th Aerodynamic Measurement Technology and Ground Testing Conference, Washington, D.C., USA, 13 – 17 June, 2016.

M. Ehresmann, J.-P. Baumann, A. Behnke, J. Franz, L. Friedrich, G. Björn, D. Galla, F. Grabi, R. Hießl, M. T. Koller, P. Kumpf, N. Müller, A. Papanikolaou, J. Rieser, F. Schäfer, V. Schöneich, H. Seiler, M. Siedorf, V. Starlinger, A. Stier, A. Tabelander, S. Wizemann, F. Vardar, A.S. Pagan, C. Montag, G. Herdrich und R. Laufer, „Micro Return Capsule 2 - REXUS Experiment Results“, 4S Symposium, Valletta, Malta, 30 May – 03 June, 2016.

M. Dropmann, M. Ehresmann, A.S. Pagan, Q.H. Le, F. Romano, C. Montag, G. Herdrich: „Low Power Arcjet Application for End of Life Satellite Servicing“, Clean Space Industrial Days, Noordwijk, The Netherlands, 23 – 27 May, 2016.

A.S. Pagan, C. Zuber, J. Rieser, B. Massuti-Ballester, G. Herdrich, H. Hald, S. Fasoulas: „Characterisation of the Lightweight Ablative Heat Shield Material ZURAM® in High-Enthalpy Air Flows“, 8th European Workshop on TPS and Hot Structures, Noordwijk, The Netherlands, 19 – 22 April, 2016.

A.S. Pagan, B. Massuti-Ballester, G. Herdrich, J.A. Merrifield, J.C. Beck, V. Liedtke, R. Ogawa, Y. Kubota, H. Hatta, B. Bonvoisin: “Overview of Recent Experimental Activities towards the Characterization of Demisable Materials at IRS”, 8th European Workshop on TPS and Hot Structures, Noordwijk, The Netherlands, 19 – 22 April, 2016 *(Presentation only).*

S. Wizemann, M. Ehresmann, J.-P. Baumann, A. Behnke, J. Franz, B. Gäßler, D. Galla, F. Grabi, M. Koller, G. Kuhn, N. Müller, A. Papanikoloau, J. Rieser, V. Schöneich, H. Seiler, M. Siedorf, V. Starlinger, A. Stier, A. Tabelander, A.S. Pagan, C. Montag, G. Herdrich, S. Fasoulas und S. Klinkner, „Micro-Reentry-Capsule-2 REXUS,“ in 1st Symposium on Space Educational Activities, Padova, Italy, 9 – 12 December, 2015.

A.S. Pagan, B. Massuti-Ballester, G. Herdrich: “Experimental Demisability Investigation of Common Spaceflight Materials”, 2015-c-02, 30th International Symposium on Space Technology and Science, Kobe, Japan, 4 – 10 July, 2015.

R.A. Gabrielli, A.S. Pagan, E. Ferrer-Gil, G.H. Herdrich: “System Oriented Development of Fusion Propulsion Concepts“, IEPC-2015-23 / ISTS-2015-b-23, 30th International Symposium on Space Technology and Science, Kobe, Japan, 4 – 10 July, 2015.

G. Herdrich, R. Laufer, A.S. Pagan: „Planetary Probe Design Workshop: Collaborative Hands-On Small Satellite Training for Engineering Students”, 10th IAA Symposium on Small Satellites for Earth Observation, Berlin, Germany, 20 – 24 April, 2015.

A.S. Pagan, G. Herdrich, R. Laufer, the KSat Team: „CubeSat Atmospheric Probe for Education (CAPE*)“*, 10th IAA Symposium on Small Satellites for Earth Observation, Berlin, Germany, 20 – 24 April, 2015.

M. Ehresmann, A. Behnke, J.-P. Baumann, R. Tietz, J. Franz, D. Galla, F. Grabi, M. Koller, J. Rieser, V. Schöneich, H. Seiler, M. Siedorf, A.S. Pagan, G. Herdrich, R. Laufer: „CubeSat-sized Re-entry Capsule MIRKA2“, 10th IAA Symposium on Small Satellites for Earth Observation, Berlin, Germany, 20 – 24 April, 2015.

V. Schöneich, F. Grabi, H. Seiler, J.-P. Baumann, A. Behnke, M. Ehresmann, J. Franz, D. Galla, M. Koller, J. Rieser, M. Siedorf, R. Tietz, A.S. Pagan, G. Herdrich, R. Laufer: „A Service and Deorbit Module for CubeSat Applications“*,* 10th IAA Symposium on Small Satellites for Earth Observation, Berlin, Germany, 20 – 24 April, 2015.

A.S. Pagan, Bartomeu Massuti-Ballester, Tobias Mayer, G. Herdrich, S. Fasoulas, R. Ogawa, Y. Kubota, K. Yasuo, H. Hatta: “Laser-based Surface Recession Measurements of Ablating Heat Shield Materials in High-Enthalpy Flows”, 8th European Symposium on Aerothermodynamics for Space Vehicles, Lisbon, Portugal, 2 – 6 March, 2015.

A.S. Pagan, B. Massuti-Ballester, G. Herdrich: “Characterisation of Material Demisability through Plasma Wind Tunnel Experiments”, 8th European Symposium on Aerothermodynamics for Space Vehicles, Lisbon, Portugal, 2 – 6 March, 2015.

B. Massuti-Ballester, A.S. Pagan, G. Herdrich: “Determination of Total and Spectral Emissivities of Space-relevant Materials”, 8th European Symposium on Aerothermodynamics for Space Vehicles, Lisbon, Portugal, 2 – 6 March, 2015.

B. Massuti-Ballester, A.S. Pagan, T. Hermann, G. Herdrich, S. Fasoulas: „Characterisation of a Heat Shield Hybrid Solution for Hyperbolic Earth Entry“, 8th European Symposium on Aerothermodynamics for Space Vehicles, Lisbon, Portugal, 2 – 6 March, 2015.

J.-P. Baumann, A.S. Pagan, G. Herdrich: „Aerothermodynamic Re-Entry Analysis of the CubeSat-Sized Entry Vehicle MIRKA2“, 8th European Symposium on Aerothermodynamics for Space Vehicles, Lisbon, Portugal, 2 – 6 March, 2015.

A.S. Pagan, M. Fugmann, G. Herdrich, The KSat Team: „ A System Approach towards a miniaturized Pulsed Plasma Thruster for a CubeSat-Type Deorbit Module”, 5th Russian-German Conference on Electric Propulsion and Their Application, Dresden, Germany, 7-12 September, 2014.

A.S. Pagan, E. Ferrer Gil, R.A. Gabrielli, G. Herdrich: “Study of Magnetic Confinement Configurations for Fusion Space Propulsion“, Deutscher Luft- und Raumfahrtkongress, Stuttgart, Germany, September 2013.

Own Student Theses

A.S. Pagan: „Study of a Toroidal Magnetic Confinement for Fusion Space Propulsion“, Diploma Thesis, IRS-14-S-014, University of Stuttgart, 2014.
(*NOTE:* Supervised by R.A. Gabrielli, Responsible Professor: PD Dr.-Ing. Georg Herdrich, IRS, University of Stuttgart)

A.S. Pagan: „Numerische Simulation einer Modell-Raketenbrennkammer mit Einzelinjektor und Untersuchung des Einflusses einer Variation des Turbulenzgrades sowie der turbulenten Schmidt- und Prandtl-Zahl“, Study Thesis, University of Stuttgart, 2013.
(*NOTE:* Supervised by M. Lempke, Responsible Professor: apl. Prof. Dr. Peter Gerlinger, IVLR, University of Stuttgart, on the premises of DLR Stuttgart)

Supervised Student Theses *(Total: 16)*

NOTE: *All student theses listed in the following have been advised under the professorial responsibility of PD Dr.-Ing. Georg Herdrich (herdrich@irs.uni-stuttgart.de)*

1. S. Pirrone: [Ongoing Ablation Modelling Topic], 2019.

2. C. Agabiti: [Ongoing Ablation Modelling Topic], 2019.

3. J. Glück: [Ongoing Flight Experiment Topic], 2019.

4. T. Evertz: [Ongoing Design for Demise Topic at Airbus], 2019.

5. D. Galla: “Investigation of the Oxidation Behaviour of Ultra High Temperature Ceramics”, Master Thesis, IRS-18-S-072, University of Stuttgart, 2018.
   (*NOTE:* Co-supervised with A. Momozawa, University of Tokyo and B. Massuti-Ballester, IRS, University of Stuttgart)

6. S. Buchfelner: “Simulation and Analysis of Pressure Vessel Re-Entry and Demise”, Master Thesis, IRS-18-S-077, University of Stuttgart, 2018.

7. R. Müller: “Assessment of Magnetohydrodynamic (MHD) Impact of an Applied Magnetic Field on the Surface Heat Flux during Re-Entry of a MIRKA2 Capsule”, Bachelor Thesis, IRS-18-S-025, University of Stuttgart, 2018.
   (*NOTE:* Co-supervised with P.P. Upadhyay, IRS, University of Stuttgart)

8. D. Fuchshuber: “Extraction of Thermophysical Material Properties from Plasma Wind Tunnel Experiments”, Bachelor Thesis, IRS-17-S-065, University of Stuttgart, 2017.

9. M.C. Müller: “Design of a Radiative Heating System for a Static Entry Testing Facility”, Bachelor Thesis, IRS-17-S-062, University of Stuttgart, 2017.
   (*NOTE:* Co-supervised with B. Massuti-Ballester, IRS, University of Stuttgart)

10. C. Walter: “Definition of Material Characterisation Techniques for a Static Entry Testing Facility”, Bachelor Thesis, IRS-17-S-061, University of Stuttgart, 2017.
    (*NOTE:* Co-supervised with B. Massuti-Ballester, IRS, University of Stuttgart)

11. S. Pavesi: “Characterisation of Ablative Thermal Protection System Materials through Analysis and Inverse Methods”, Master Thesis, IRS-17-S-009, University of Stuttgart / Fachhochschule Wiener Neustadt, 2017.

12. M. Mione: “Determination of Transient Heat Fluxes of High Temperature Materials in Plasma Wind Tunnels”, Master Thesis, IRS-17-S-008, University of Stuttgart / Fachhochschule Wiener Neustadt, 2017.
    (*NOTE:* Co-supervised with B. Massuti-Ballester, IRS, University of Stuttgart)

13. J. Gauger: “Design of an Atmospheric Entry Capsule Geometry Plasma Probe”, Bachelor Thesis, IRS-17-S-005, University of Stuttgart, 2017.

14. K. Avasak: “Mission Analysis for the CubeSat Atmospheric Probe for Education”, Master Thesis, IRS-16-S-071, University of Stuttgart / Luleå University of Technology, 2016.

15. N. Hoffmann: “Improvement of a Laser-based Surface Recession Measurement System for Ablative Thermal Protection System Materials”, Bachelor Thesis, IRS-16-S-042, University of Stuttgart, 2016.

16. J. Rieser: „Experimentelle Charakterisierung des Ablativen Hitzeschutzmaterials ZURAM“ *(in German)*, IRS-16-S-013, University of Stuttgart, 2016.

17. M. Siedorf: “Design, Construction and Test of the Low Orbit Technical Unit Separator LOTUS”, Bachelor Thesis, IRS-16-S-012, University of Stuttgart, 2016.

18. M. Koller: “Development of the Electronic System for the MIRKA2 Micro Return Capsule”, Bachelor Thesis, IRS-15-S-077, University of Stuttgart, 2016.
    (*NOTE:* Winner of *Tesat Raumfahrtpreis 2016*)

19. G. Rinaldi: “Establishment of a Data Transmission Protocol for the Micro Return Capsule MIRKA2”, Master Thesis, IRS-15-S-057, University of Stuttgart / Politecnico di Turino, 2015.
    (*NOTE:* Co-supervised with U. Mohr, IRS, University of Stuttgart)

20. M. Eilenberger: “In-Orbit Thermal Analysis of the CubeSat Atmospheric Probe for Education”, Bachelor Thesis, IRS-15-S-053, University of Stuttgart, 2015.

21. V. Kunberger: “Study of an Effusion Cooling of Porous Blankets and Scrap-Off-Layer Injections for Fusion Propulsion”, Bachelor Thesis, IRS-15-S-043, University of Stuttgart, 2015.
(*NOTE:* Co-supervised with R.A. Gabrielli, IRS, University of Stuttgart)

22. G. Just: “Review of Analytical Mass Loss Rate Modelling Approaches for Carbon-based Ablative TPS Materials”, Bachelor Thesis, IRS-15-S-022, University of Stuttgart, 2015.

23. M. Fugmann: „Skalierung eines elektrischen Pulsantriebs und Trajektorienanalyse für das MIRKA2 Deorbitmodul“ (in German), Bachelor Thesis, IRS-14-S-053, University of Stuttgart, 2014.