

PERSONAL INFORMATION

Dr. Klaus Gerhard Puschmann



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Sex M | Date of birth 23/01/1968 | Nationality Austrian

WORK EXPERIENCE

2014 – 2016

Senior Optical Engineer, Space Situational Awareness (SSA) Preparatory Programme Office, Space Weather Segment & NEO Segment, OPS-L, ESA/ESOC Darmstadt, Germany

RHEA Systems for European Space Agency

- Focus on the Development of the ESA L1/L5 Lagrange Space Weather Mission and the Near-Earth Object Survey TELEscope (NEOSTEL).
- Co-Organizer, Board-Member and Secretary – NEOSTEL Preliminary and Final Design Review (PDR, FDR)
- Expert in the NEOSTEL Tender Evaluation Board (TEB)
- Airbus L1/L5 Lagrange Space Weather Mission Definition Review (MDR)
- OHB L1/L5 Lagrange Space Weather Mission Definition Review (MDR)
- Participation in the development of ground-based Optical Telescopes for Optical Space Link

Business or sector: Aerospace

2010-2014

Instrument Scientist at the Leibniz-Institute for Astrophysics Potsdam (AIP, Germany) in the Optical Solar Group led by adjunct Prof. Dr. C. Denker

Leibniz-Institute for Astrophysics Potsdam (AIP, Germany)

- Further instrumental development of the GREGOR Fabry-Pérot Interferometer (GFPI) including optical design, optics, opto-mechanics, control soft- and hardware.
- Commissioning, science verification, operation, scientific exploitation of the GFPI.
- Instrumental development of the BLue Imaging Solar Spectrometer (BLISS) including optical design, optics, opto-mechanics, cameras, etalons, control soft- and hardware.
- Further improvements of my GFPI/BLISS-data pipeline including Speckle-, Speckle Deconvolution-, and MOMFBD-techniques as well as polarimetric data calibration.
- Observational astrophysics and scientific writing covering the solar photosphere, chromosphere and related magnetic fields as well as instrumental development and technical innovations.

Business or sector: Solar Physics and Instrumental Development

2009-2010

Post-doc at the Instituto de Astrofísica de Canarias (IAC, Spain) in the group led by Prof. Dr. F. Moreno-Inertis: La atmósfera solar, computación y observación, AYA2007-65502 (3E4507)

Instituto de Astrofísica de Canarias (IAC, Spain)

- Spectral line inversion techniques and semi-empirical geometrical modelling of Sunspots.
- Further development of my GFPI-data pipeline including Speckle-, Speckle deconvolution-, and MOMFBD-techniques as well as polarimetric data calibration.
- Observational astrophysics and scientific writing covering the solar photosphere, chromosphere and related magnetic fields.

Business or sector: Solar Physics

- 2007-2009 **Post-doc at the Instituto de Astrofísica de Canarias (IAC, Spain) in the group led by Dr. V. Martínez-Pillet: Integración y vuelo de SUNRISE/MAX. Fase conceptual de SOLAR/VIM (4E3806)**
 Instituto de Astrofísica de Canarias (IAC, Spain)
- Assembly, Integration and Verification of IMAX, SUNRISE
 - Spectral line inversion techniques and semi-empirical geometrical modelling of Sunspots.
 - Further development of a GFPI-data pipeline including Speckle-, Speckle deconvolution-, and MOMFBD-techniques as well as polarimetric data calibration.
 - Observational astrophysics and scientific writing covering the solar photosphere, chromosphere and related magnetic fields.
- Business or sector:** Solar Physics and Instrumental Development
- 2002-2007 **Post-doc position at the Universitäts-Sternwarte Göttingen (USW, later Institute for Astrophysics Göttingen, IAG, Germany) in the group led by Dr. F. Kneer**
 Universitäts-Sternwarte Göttingen (USW, later-on Institute for Astrophysics Göttingen, IAG, Germany)
- Development and AIT of the GREGOR Fabry-Pérot Interferometer (GFPI) as the successor of the Göttingen Fabry-Pérot Interferometer (GFPI) including optical design, optics, opto-mechanics, cameras, etalons, control soft- and hardware.
 - Development of my GFPI-data pipeline including Speckle-, Speckle Deconvolution-, and MOMFBD-techniques as well as polarimetric data calibration.
 - Observational astrophysics and scientific writing covering the solar photosphere, chromosphere and related magnetic fields as well as instrumental development and technical innovations.
- Business or sector:** Solar Physics and Instrumental Development

EDUCATION AND TRAINING

- 2002 **Defence of the Thesis**
 Karl-Franzens University, Graz, Austria
- 1998-2002 **PHD-Thesis in Astrophysics**
 Instituto de Astrofísica de Canarias, IAC, La Laguna, Canary Islands, Spain
- 1998 **Diploma in Astrophysics**
 Karl-Franzens-University, Graz, Austria
- 1987-1998 **Study of Astrophysics**
 Karl-Franzens-University, Graz, Austria
- Courses of experimental and theoretical physics
 - Courses of mathematics
 - Courses of astrophysics
 - Courses of meteorology

PERSONAL SKILLS

Mother tongue(s) German

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
Spanish	C1	C1	C1	C1	C1

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages

Communication skills

- Scientific publishing in different referred and non-referred journals
- Oral and poster contributions at international conferences and meetings
- Invited talks at different international institutes
- Public talks
- International framework of collaborators

Organisational / managerial skills

- Senior Optical Engineer, ESA SSA Preparatory Programme Office, OPS-L ESOC
- Co-organizer, Board-Member and Secretary - NEOSTEL Preliminary and Final Design Review (PDR, FDR)
- Expert in the NEOSTED Tender Evaluation Board (TEB)
- Airbus L1/L5 Lagrange Space Weather Mission Definition Review (MDR)
- OHB L1/L5 Lagrange Space Weather Mission Definition Review (MDR)
- Instrument Scientist of the GREGOR Fabry-Pérot Interferometer (GFPI) and the Blue Imaging Solar Spectrometer (BLISS)
- Member of the 1.5m GREGOR Solar Telescope Project
- University Lecturing and Support of Erasmus, Diploma and PhD Students

Job-related skills

- Publication Record: 75 publications (41 refereed) with 764 citations are listed in the SSAO/NASA Astrophysics Data System ([ADS](#)) - Hirschindex: 15
- Referee for Astronomical Journals
- Member of a Local Organizing Committees (LOCs)
- Co-Editor of the Proceedings "Modern Solar Facilities - Advanced Solar Science"
- Member of the Spanish Time Allocation Committee (Cat-Solar)

Computer skills

- Programming languages: IDL, Fortran, HTML
- Operative systems: Windows, Linux, MAC OS
- Office Products: MS-Office, Latex, Image processing applications

Other skills

Astrophysics, Solar Physics, Aerospace, Space Weather, Post-Focus Instrument Development, Instrument Control Software Development, Instrument Data Pipeline Development, Optical Telescope Development, Remote Sensing Payload Development, In-situ Payload Development, Space Mission Development, Development of ground-based Telescopes for Optical Space Link/Communication, Spacecraft Development, Telescope/Instrument/Spacecraft AIT, Observational Astronomy, Spectroscopy, Spectropolarimetry, Image processing, Image Reconstruction Techniques, Scientific Data Analysis, Spectral Line Inversion Techniques, 3D semi-empiric Sunspot modelling, Near Earth Object Detection, Optics, Opto-mechanics, Adaptive Optics, Detectors, Etalons, Optical Design, Scientific Software Development, Requirement Development, Scientific Writing, Sun, Photosphere, Chromosphere, Corona, Heliosphere, Solar Wind, Magnetic fields and Waves

Driving licence

A, B

ADDITIONAL INFORMATION

Projects Observational Experience: 35 technical and observing campaigns at various solar telescopes

- German Vacuum Tower Telescope (VTT)
- 1-Meter Swedish Solar Telescope (SST)
- 1.5-Meter GREGOR Solar Telescope (GREGOR)

with different post-focus instrumentation:

- GREGOR Fabry-Pérot Interferometer (GFPI) @ GREGOR and VTT
- Göttingen Fabry-Pérot Interferometer (GFPI) @ VTT
- Echelle Spectrograph (VTT) + Tenerife Infrared Polarimeter (TIP) @ VTT
- TElecentric SOLar Spectrometer (TESOS)+ Visible-light Imaging Polarimeter (VIP) @ VTT
- CRisp Imaging SpectroPolarimeter (CRISP) @ SST
- Broadband and narrowband imaging @ VTT, SST, GREGOR