

SUMMER SCHOOL TUTORS 2017



# THE DUSTY UNIVERSE

[www.summerschoolalpbach.at](http://www.summerschoolalpbach.at)



- one scientific and one engineering team tutor for each team
  - science tutor to provide scientific advice on target topics for scientific missions
  - engineering tutor to bring practical space project expertise to help with engineering topics
- 5-6 roving tutors provide support to all teams for end-to-end design tasks and mission costing
- Tutors help to integrate the science and engineering tasks into the activities of the student teams

# TUTORS 2017



- Peter Falkner, Head Tutor
- Günter Kargl, Austria, Engineering
- Anton Ivanov, Switzerland, Engineering
- Jaan Praks, Finland, Engineering
- Luzius Kronig, Switzerland, Engineering
- Stephan Ulamec, DLR, Engineering
- Martin Linder, ESA, Engineering
- Etienne Montagnon, CNES, Engineering
- Clemens Plank, Engineering
- Carsten Scharlemann, Engineering
- Marc Sauvage, France, Science
- Kieran Leschinski, Austria, Science
- Dieter Lutz, Germany, Science
- Russel Shipman, The Netherlands, Science
- Michael Mach, Austria, Science
- Theresa Lüftinger, Austria, Science
- Vera Konyves, CEA, Science

# PETER FALKNER (HEAD TUTOR)



FFG

## European Space Agency

Head of Mission Studies Office

at Future Missions Department, Directorate of Science

- Since 1997 (20 years at ESA) <http://sci.esa.int/future-missions-office/>
- 1991-1997 Austrian Academy of Sciences (IWF-Graz)

## Background:

- Conducted many (>50) space mission studies Phase 0, A (Science Programme & Mars Robotic Exploration)
- Technology preparation & development for future missions
- Instrument development (CO-I Huygens HASI/PWA, Stereo, Cluster-II, Rosetta,...)

## Education:

- TU-Graz: Dr. Techn. in Space Instrumentation (1999)
  - TU-Delft: Master Space Systems Engineering (2002)
  - TU-Graz: Eng. Electronics & Communications (1991)
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- Alpbach Summer School Tutor, Head Tutor, Lecturer for 10 years (since 2007)





# ANTON IVANOV – ENGINEERING



**Space Engineering Center  
Ecole Polytechnique Fédérale de Lausanne  
Switzerland**

- **Employment**

- 2007 – current: Scientist, Space Center EPFL
- 1999 – 2007: Jet Propulsion Laboratory, Pasadena, CA

- **Experience**

- Concurrent Design Facility at EPFL
- Responsible for minor in Space Technologies at EPFL
- Mission Design Studies for nanosatellites (CubETH), suborbital plane, exoplanets characterization (CHEOPS), constellation with hyperspectral payload (SOLVE)
- Mars studies: MGS MOLA, M01 THEMIS, MRO HIRISE and CTX, MEX MARSIS, TGO CASSIS

- **Education**

- California Institute of Technology, Pasadena, CA, USA (2000)
- Moscow Engineering Physics Institute, Moscow, Russia (1994)



- Works at Space Research Institute of the Austrian Academy of Sciences, Lecturer at Karl-Franzens University Graz
- Areas of Expertise:
  - Comets and physical properties of planetary surfaces
  - In-situ instrumentation
  - Laboratory experiments
  - Instrument development and scientific participation in e.g. Cassini/Huygens, Rosetta, InSight missions
- Alpbach Summer School Team Tutor since 2008



## PhD Candidate at the Robotics System Lab EPFL

### Experience:

- YGT at ESA
  - GNC of Euclid
- Research Engineer at the Swiss Space Center
  - Feasibility study and mission design of CHEOPS
  - System engineering of Cubeth



### Education:

- Master in mechanical engineering, EPFL
- PhD candidate at the Robotics System Lab (LSRO) at EPFL

# KIERAN LESCHINSKI - SCIENCE



University of Vienna - (Department of Astrophysics)  
MICADO Consortium - (Data Flow Systems Team)

## Scientific Interests and Background

- Star Formation,
  - Connection between extinction, dust and the star formation rate of molecular clouds
  - The origin of the IMF and possible variations in the IMF
- The E-ELT
  - Simulations of the output from the MICADO camera
  - Feasibility studies of various science use cases for the E-ELT and MICADO

## Education

- BSc (Physics, Astro) at Monash University (Australia)
- MSc (Astro) at University of Vienna
- Currently a PhD student at the University of Vienna





# CLEMENS PLANK – ENGINEERING



## **Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR)**

German Space Administration | Dept. of Space Science

- SOFIA Project Engineer / Chief Engineer Telescope Assembly
- Before: Process Engineer in the Automotive Industry

### Further Experience:

- Flight Director for Analog Mars Mission (AMADEE-15)
- Parabolic Flight Campaign for Students (FlyYourThesis2012!)
- Visiting Researcher at NASA, JSC - Dept. of Biomechanics.
- Sounding Rocket Experiment for University Students (REXUS)

### Education:

- Technische Universität München - Diploma in Astronautics and Nuclear Engineering
- Massachusetts Institute of Technology - Diploma Thesis at the Dept. of Nuclear Science & Engineering



# RUSSELL SHIPMAN - SCIENCE

- Works at SRON Netherlands Institute for Space Research
- Research Astronomer, calibration scientist for the ISO Short Wavelength Spectrometer, Herschel/HIFI Instrument Control Centre manager
- Lecturer at Kapteyn Institute of University of Groningen.

## Interests:

- Properties of interstellar dust in extreme environments and the smallest grain component

## Education:

- Ph.D. in Physics and Astronomy, University of Wyoming, USA





- Head of Aerospace Engineering department at the University of Applied Sciences Wiener Neustadt, Austria
- Propulsion Engineer: Development of electric and chemical propulsion systems
- „Green propellants“ for space applications
- PM of the nanosatellite program PEGASUS (FHWN)

## Special interests:

- ISRU
- Green propellants

## Education:

- Ph.D. in Aerospace Eng., The Ohio State Univ., USA
- Master of Aerospace Eng., Technische Univ. München



## German Aerospace Center, DLR Space Operations and Astronaut Training, Köln, Germany

### Education

- Dr. rer. nat., Karl Franzens Universität Graz (Austria), 1991
- Mag. rer. nat. (diploma in Geophysics), Karl Franzens Universität Graz, 1988

### Employment

- Scientific staff, DLR 1994–present
- Research Fellow, ESA/ESTEC, Noordwijk, 1991-1993

### Experience

- Rosetta Lander - Philae, Project Manager (Systems Engineer), 1994-2016
- MASCOT (Hayabusa2) Payload Manager, 2010-present
- COSAC Co-I, 1995-present
- CLUPI (ExoMars) Co-I, 2014-present
- Proposal/study Team Member, e.g. AIDA/AIM, MarcoPolo, MarcoPolo-R, CHopper, CHagall, AJAX
- ExoMars-GEP Project Manager, 2005-2007



# DIETER LUTZ - SCIENCE



Max-Planck-Institut für extraterrestrische Physik, Garching  
since 1991

## Science Interests:

- Galaxy evolution
- Infrared and starburst galaxies
- Active galaxies

## Background:

- Lead of observing projects with ISO, Spitzer, Herschel, and ground-based telescopes
- Project scientist of an ISO large GTO mid-infrared spectroscopic galaxy survey
- PI of a Herschel/PACS GTO deep galaxy survey
- Calibration of ISO Short Wavelength Spectrometer and Herschel PACS Camera/Spectrometer

## Education:

- 1986 Physics Diploma, Universität Heidelberg
- 1990 PhD Astronomy, Universität Heidelberg





# MARTIN LINDER - ENGINEERING



Education: Physicists, working on a Cryogenically cooled Infrared Telescope to study the atmosphere (CRISTA-SPASII, launched in 1997 on STS-85)

Carreer: Joined ESA in 1999, working as a Cryogenic Engineer supporting the Herschel mission during the implementation phase, developing several space cryogenic coolers and supported various mission studies in Earth Observation (e.g. MTG) and Science on cryogenic aspects

Working since 2011 in the Future Mission department in the Science directorate as Payload Engineer, supporting Phase A studies on cryogenic payloads (EChO, Athena) and leading the Payload Instrument section since 2014



## French Space Agency, CNES

- Flight Dynamics Engineer, Toulouse Space Center, France

### Experience:

- On going studies aiming at getting better predictability of solar activity and atmospheric drag
- Mission analysis for CSO (Earth Observation mission)
- Responsible for orbital manoeuvres components of the Flight Dynamics System (SIRIUS) developed by CNES
- Responsible for orbital manoeuvres on various operational satellites : JASON, CALIPSO, SMOS, PLEIADES, ...
- Mission analysis Engineer , mission analysis for different space companies (Airbus Defence and Space, Thales Alenia Space)

### Education:

- ENSAE Supaero , Toulouse – Eng. Space & Telecommunications
- Master Space Science & Technics at University P. Sabatier, Toulouse



## Post-doctoral Researcher

at the Département d'Astrophysique of the CEA/Saclay, France

## Science Interests:

- The structure of the Galactic interstellar medium
- Star formation in nearby molecular clouds  
(mostly based on photometric and spectroscopic data at radio, sub-mm, and IR wavelengths)

## Background:

- Active member of the *Herschel* Gould Belt survey consortium
- Benchmarking map-making tools with the PACS & SPIRE ICCs
- Observations with ground-based telescopes (PI and collaborator)
- Development engineering at Knorr-Bremse Sys. for Commercial Vehicles

## Education:

2007 – PhD in Astronomy

2001 – MSc as Astronomer and Physics Teacher

(both at the Eötvös Loránd University, Budapest, Hungary)



## Aalto University, Department of Electronics and Nanoengineering

Assistant Professor

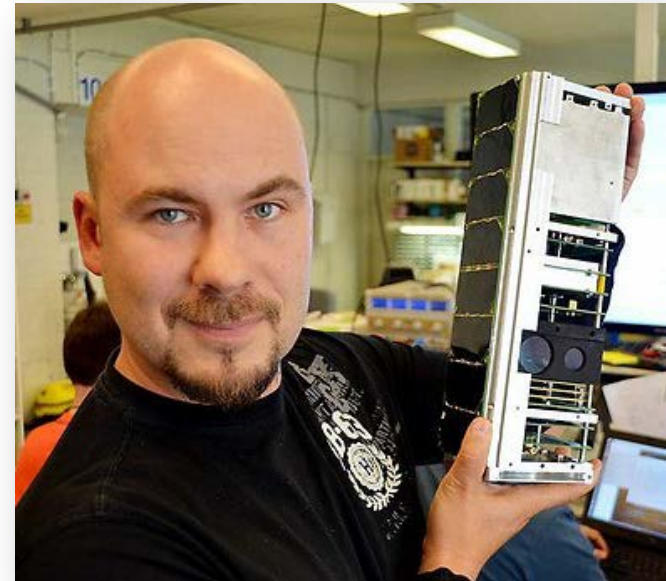
Microwave remote sensing and space technology

Education:

Doctor of Science (Technology), Aalto University

Experience

- *Space Technology, CubeSat, student projects, Remote Sensing, Radar imaging, Spectrometer imaging, Polarimetry, Interferometry*
- Responsible leader of Aalto-1, Aalto-2 and Aalto-3 CubeSat projects
- Teacher of space technology and remote sensing courses at Aalto
- Organizer of many student workshops and summer schools
- Involved in spinning off NewSpace companies



Department for Astrophysics – (Univ. Vienna)  
METIS Consortium – (Data Reduction Pipeline Team)

## Scientific Interests and Background

- Active Galactic Nuclei (AGN)
  - composition of the clumpy torus
  - dust component @  $\sim 300$  K
  - mass transfer from torus onto smBH
- The E-ELT
  - Pipeline design for METIS
  - AGN Simulations with the METIS Simulator

## Education

- Bakk.rer.nat (Astro) – Univ. Vienna (Austria)
- MSc. (Astro) – Univ. Vienna (Austria)
- Currently: PhD student (Astro) – Univ. Vienna (Austria)





# THERESA LÜFTINGER – SCIENCE



## University of Vienna, Department of Astrophysics

Senior scientist, Project Leader, Lecturer

### Background:

- Consortium member/science contributions within ESA missions: PLATO, Ariel (former EChO), CHEOPS, CoRoT
- Exoplanets, Habitability
- Magnetism and activity in stars
- Elemental abundances, VALD, VAMDC (atomic and molecular databases),
- Numerous observing runs (Australia, ESO/Chile, France, etc.)

### Education:

- ESO: Visiting Scientist
- University of Vienna, Department of Astrophysics: PhD
- University of Vienna, Department of Astrophysics: Msc

