

Curriculum Vitae



Prof. Dr. Pascale Ehrenfreund
Space Policy Institute
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Born: 1960, Vienna, Austrian nationality, permanent resident US
Languages: German, English, French, Dutch
Asteroid 9826 Ehrenfreund 2114 T-3

Academic Education:

- 2008 M.A. Management & Leadership, Webster University, GPA: 3.83
Title: Managing Global Space Exploration
- 1999 Venia legendi in Astrochemistry: Title: *Cosmic Dust*, Univ. Vienna
- 1990 PhD Astrophysics, graduated with excellent grades
Title: Visible and Infrared Spectroscopic Studies of Polycyclic Aromatic Hydrocarbons and other Carbon Clusters
Univ. Paris VII, Groupe de Physique des Solides and Univ. Vienna
- 1988 M.S. Molecular Biology, graduated with excellent grades
Title: Purification and properties of an Iminopeptidase from Streptomyces plicatus
Austrian Academy of Sciences, Institute of Molecular Biology, Salzburg
- 1983-1988 Univ. of Vienna: Astronomy and Biology/Genetics 10/10

Professional Experience:

- 2013- President, Austrian Science Fund FWF
- 2008- Faculty, Research Professor of Space Policy & International Affairs,
Elliott School of International Affairs, George Washington University, USA
- 2008- Lead Investigator: NASA Astrobiology Institute, Node Wisconsin
- 2006- Visiting Professor, Astrobiology, Univ. Leiden, Institute of Chemistry, NL
- 2005-2008 Distinguished Visiting Scientist/Consultant, JPL/Caltech, Pasadena, USA
- 2004-2005 Professor, Astrobiology, Univ. Leiden, Institute of Chemistry, NL
- 2003-2004 Professor, Astrobiology, Univ. Amsterdam, NL
- 2002-2008 Adjunct Professor, Univ. Nijmegen, Institute of Astronomy, NL
- 2001-2003 Associate Professor at Leiden Observatory, NL
- 1999-2001 NOVA fellow (Netherlands Research School for Astronomy), Leiden Observatory
- 1996-1999 APART fellow (Austrian Programme for Advanced Research and Technology)
- 1994-1996 Postdoc: Marie Curie European Commission fellowship
- 1991-1993 Postdoc: CNES fellowship at Service d'Aeronomie, Verrières-le-Buisson, France
- 1990-1991 Postdoc: ESA fellow at Leiden Observatory, NL

Research Expertise: Astrophysics, Astrochemistry, Astrobiology

Interstellar chemistry (galactic and extragalactic); Development and operation of space simulation facilities for interstellar and planetary research (including cryo-, ultrahigh vacuum and radiation techniques); Spectroscopy database management of ices and organics; Identification of organic molecules on planetary surfaces, comets, asteroids and meteorites; Organics and life detection on Mars; Support to instrument development for life and organic detection on Mars; Prebiotic chemistry; Field analogue research in extreme environments (Atacama desert, Utah) in support of planetary exploration; *Space Policy*: Policy aspects of Global Space Exploration, Earth-Space synergies

Astronomical Observations

More than 50 astronomical campaigns conducted as Principal Investigator at European Southern Observatory (ESO 3.6m, 2.2m, 1.5m, CAT, VLT) Chile, Canada-France-Hawaii Telescope (3.6 m), La Palma (INT 2.5m, WHT 4m), Haute-Provence (2m, 1.5m), Pic du Midi Observatories (2m), Tucson, NRAO (12 m), JCMT, Hawaii, IRAM 30 m

Coordinator: Ground-based astronomical campaign: ESA SMART-1 impact on the Moon, 2006

Education and Outreach Experience:

Supervision of 7 PhD students, 6 Postdocs, 20 undergraduates, 6 research assistants

Courses at Universities of Nijmegen/Vienna/Leiden/Amsterdam/Delft since 1998:

- *Cosmochemistry: From the origins of the elements to the emergence of life*
- *Solar System*
- *Dust and molecules in the galaxy*
- *Astrobiology: the search for life in the Universe*
- *Teacher seminars, Space Law Lectures*

Science and script advisor for IMAX and documentary movies

Science committee, lecturer and jury: Life in the Universe, Geneva

Lecturer at numerous summer schools including Space Forum Alpbach, ISU, ESA Space Camp

Speaker for ESA press events for ISO, Rosetta, Mars-Express, SMART-1 and ISS

Speaker for NASA press events for the O/OREOS satellite mission

Numerous public conferences, journal and TV interviews

Regular participation to science/art events

Publications per June 2015: Citation Index: $h=57$ >10000 citations (Google Scholar)

Publications in peer-reviewed journals:	182
Invited reviews, book chapters and conference papers:	133
Edition of books:	12
Invited lectures	~300

Prizes/Awards:

2013	NASA Astrobiology Institute
2011	NASA Group Achievement Award for the O/OREOS satellite mission
2007	NASA Astrobiology Institute
2001	Pastoor-Schmeits Prize for Astronomy, NL
2001	New Impulse grant, Dutch Government
1999	Asteroid 9826 Ehrenfreund 2114 T-3
1996	APART Prize, Austrian Academy of Science

Space Research Responsibilities:

2015-	Science Team Member: <i>Biosign</i> , ISS/ILSRA 2014
2015-	Science Team Member: <i>EXOCube</i> , ISS/ILSRA 2014
2015-	Science Team Member: <i>MASE in Space</i> , ISS/ILSRA 2014
2011-2014	Science Team Member, <i>MarcoPolo-R Asteroid Sample Return</i> , ESA Cosmic Vision M3
2010-	Teamleader: <i>OREOcube</i> , International Space Station, scheduled for 2016
2010-	Science Team Member: <i>EXPOSE-R2</i> , International Space Station launched for 2014
2008-2013	NASA Project Scientist: <i>O/OREOS satellite</i>
2005-	Science Team Member: <i>Mars Organic Molecule Analyser</i> , Exomars 2018
2005-2012	Science Team Member: <i>Life Marker Chip</i> , Exomars 2018
2003-2009	NASA Deputy Principal Investigator: <i>Urey Life Detection Instrument</i> , Exomars 2018
2000-	Principal Investigator: <i>RCL- Recognized Cooperating Laboratory</i> , Mars-Express
2000-2006	Co-Investigator: <i>Advanced Microcamera Imaging Experiment</i> , SMART-1 Coordinator: Ground-based astronomical campaign: SMART-1 lunar impact
2000-2007	Principal Investigator: <i>Photostability of complex organics in space</i> , BIOPAN V 2005
1996-2013	Principal Investigator: <i>Evolution of organic matter in space</i> , EXPOSE-R, retrieved 2011
1996-	Rosetta, Comet rendezvous mission: Launch 2004, Arrival 2014 Co-Investigator: <i>Evolved Gas Analyser COSAC</i> Co-Investigator: <i>Micro-Imaging Dust Analysis System MIDAS</i>
1994-2000	Infrared Space Observatory ISO (1994-2000): <i>Solid state database for ISO</i>
1991-1993	Interface Scientist: <i>Aerosol Collector Pyrolyser</i> , Cassini-Huygens

Memberships in Academies and Committees:

2015-	Board of Trustees, Universities Space Research Association USRA, Region III
2014-	Member, International Institute of Space Law IISL
2013-	Member, European Commission: Horizon2020 Space Advisory Group SAG
2013-	Co-Chair, International Academy of Astronautics, Cosmic study: <i>Dynamics of Space Exploration Strategies and Future Outlook</i>
2012-	President, IAU International Astronomical Union, Commission 51 - <i>Bioastronomy</i>
2012-	Member, NRC Committee on <i>Astrobiology and Planetary Science CAPS</i>
2011-	Member, Eidgenössische Kommission für Weltraumfragen CFAS
2011-	Member, IAA International Academy of Astronautics (Life Sciences)
2010-	Chair, Committee on Space Research COSPAR Panel on Exploration PEX
2012-2014	Member, NRC Committee on <i>Human Spaceflight</i>
2013-2013	Member, Independent Assessment Team (ITA), NASA Mars Rover 2020
2012-2013	FP7 Space Advisory Group – Subcommittee on Horizon2020-Space
2011-2013	Member, European Commission: FP7 Space Advisory Group SAG
2009-2011	Steering Committee: National Research Council NRC, Planetary Decadal Survey
2009-2012	Vice President, IAU International Astronomical Union, Commission 51 - <i>Bioastronomy</i>
2008-2014	Treasurer, ISSOL International Astrobiology Society
2005-2009	Member ESF/ESSC: Steering group on <i>Science-driven Scenario for Exploration</i>
2001-2013	Vice President of EANA and Dutch representative: European Astrobiology Network
2004-2007	Member LSWG: Life Science Working Group, European Space Agency
2003-2007	Member ESF/ESSC: Steering group on Funding of European Space Research
2004-2006	Member LPSAC: Life and Physical Science Advisory Committee, ESA
2004-2006	Chair of the Organic Working group and Member: ESA Pasteur Working Group
2003-2006	Member, US Space Studies Board Committee: <i>Origins and Evolution of Life COEL</i>
2002-2006	Chair: Life Science Panel, ESF-ESSC: European Space Science Committee
2002-2005	Member, Scientific Advisory Board: SRON (Dutch Space Agency)

Editorial Boards:

- 2012- Discipline Editor: *New Space*
2012- Associate Editor: *Journal of Small Satellites*
2009- Associate Editor: *Advances in Space Research*
2005- Discipline Editor: *International Journal of Astrobiology*
2005- Discipline Editor: *Astrobiology*
2000- Discipline Editor: *Planetary and Space Science*
1998- Editorial Board: *Astrophysics and Space Science Library*

Organization of International Conferences:

- Chair: IAC 2014, Toronto: Session: *International Space Exploration Policies and Programmes*
Chair: IAC 2013, Beijing: Session: *International Space Exploration Policies and Programmes*
SOC: International Astronomical Union IAU Symposium 297, May 2013, Noordwijkerhout
The Diffuse Interstellar Bands
SOC: *Humans to Mars Summit*, May 2013, Washington DC
Chair: Committee of Space Research COSPAR Workshop: *Developing a Responsible Environmental Regime for Celestial Bodies*, December 2012, Washington DC
SOC: IAU August 2012, Beijing: *Unexplained spectral phenomena in the interstellar medium*
SOC: IAU August 2012, Beijing: *Formation, detection, and characterization of extrasolar habitable planets*
Convener: COSPAR July 2012, Mysore: *A vision for space exploration: Science as a bridge connecting stakeholders*
SOC: Global Space Exploration Conference GLEX, May 2012, Washington DC
SOC: NASA Astrobiology Science Conference 2012, April 2012, Atlanta
Chair: IAC 2011, Cape Town: Session: *Astrobiology and Exploration*
Organizer: ISSOL-Bioastronomy Meeting, July 2011, Montpellier: *Origins 2011*
Organizer: COSPAR PEX Workshop, March 2011, Washington DC: *International Earth-based research program as stepping stone for global space exploration*
Chair: IAC 2010, Prague: Session: *Astrobiology and Exploration*
Convener: EGU 2010, Vienna: *Exploring the Solar System: Missions, Techniques and Policy*
Chair: IAC 2009, Daejeon: *Astrobiology*
Convener: European Space Policy Institute, April 2008, Vienna:
COSPAR Workshop on Planetary Protection for Outer Planet Satellites
Convener: EGU 2009, Vienna: Session: *The future of space exploration: a stakeholder approach*
Vice Chair: NASA Astrobiology Science Conference, April 2008, Santa Clara
Co-Convener: EPSC 2006, Berlin: Session: *Planetary formation and the origin of the Solar System*
Co-Convener: COSPAR 2004, Paris: Session: *Steps toward origin of life: Exogenous sources and delivery*
Organizer: ISSI Workshop 2003, Bern: *Astrobiology: Future Perspectives*
Convener: COSPAR October 2002, Houston: Session: *Extraterrestrial organic chemistry*
Convener: COSPAR July 2000, Warsaw: Session: *Extraterrestrial organic chemistry*
Convener: EGS April 2000, The Hague: Session: *Laboratory space studies in the new millennium*
Convener: EGS April 1999, The Hague:
Session: *Laboratory investigations supporting space missions*
Convener: ISSI September 1998, Bern: *Cometary material: Composition and origin*
Convener: COSPAR July 1998, Nagoya: Session: *New insights into complex organics*

Invited conference presentations: (Selected from the last 5 years):

Experimental Laboratory Astrophysics (ICE2015), February 23-26, 2015, Poipu, Kauai, Hawaii

“Photostability of Organics in Low Earth Orbit”

IAC 2014, 65th International Astronautical Congress, September 27-October 3, 2014, Toronto, Canada

Panel: *“Global societal challenges as the key driver for space activities”*

Human to Mars Summit, May 2014, Washington DC: Panel: *What are the critical Mars measurements (atmospheric and surface) needed to reduce the risk of a human landing?*

1st COSPAR Symposium, Planetary systems of our Sun and other stars, November 2013, Bangkok:

Plenary Lecture: *Astrobiology: origin and evolution of life.*

Human to Mars Summit, May 2013, Washington DC:

Panel: *Humans to Mars: Science and Engineering; Science Objectives: What, Why, How?*

Sonic Acts XV: Dark Universe, Exploration in Music, Art & Science, February 2013, Amsterdam:

Plenary Lecture: *Space Exploration and the search for life in the Universe.*

Canadian Space Summit, November 2012, London, Ontario:

Keynote: *Enabling activities to enhance future cooperative space exploration effort.*

Chinese Academy of Sciences: Seminar: *Signatures of life in our Solar System*, August 2012, Beijing

XXVIII International Astronomical Union August 2012, Beijing: *Prebiotic matter in space: recent results from observations, laboratory analyses and space experiments.*

International Space Station Symposium 2012: Research in space for the benefit of humankind, May 2012, Berlin: Panel: *Astrobiology.*

European Low Gravity Research Association Symposium, September 2011, Antwerp:

Plenary: *Astrobiology in Low Earth Orbit.*

ISU Summerschool, July 2011, Core Lecturer: *Astrobiology: the search for life in the universe.*

Exploring Mars Habitability, June 2011, Lisbon: *Modern habitability and the possibility of extant life.*

International Academy of Astronautics, Low Cost Planetary Conference, June 2011, Laurel:

The O/OREOS mission: Astrobiology data collected in Earth orbit.

UK Royal Society Meeting 2011, January 2011, London: *The evolution of organic matter in space.*

Astrobiology Science Conference 2010, April 2010, Houston:

Astrobiology – A bridge between Earth science and space exploration.

European Commission: Workshop on Science and Education within Space Exploration,

March 2010, Strasbourg: *Origin of Life.*

Universities Space Research Association USRA: Human Spaceflight and the Future of Space Science, January 2010, Washington DC: *Science and Human Spaceflight today.*

Websites:

Science Watch: <http://sciencewatch.com/ana/st/astro/08junEhrenfreund/>

Astrobiology Pioneer: <http://www.gwu.edu/~spi/assets/docs/2011%20AST%20Pascale.pdf>

Faculty/Space Policy Institute: <http://www.gwu.edu/~spi/faculty.cfm>

COSPAR Panel on Exploration: <http://www.gwu.edu/~spi/pex.cfm>

Asteroid Ehrenfreund: <http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=9826+Ehrenfreund>