**Curriculum Vitae Viviane PIERRARD**

*Permanent senior research leader, head of Solar wind section at**the**Royal Belgian Institute for Space Aeronomy (BIRA-IASB), 3 Ringlaan, B-1180 Brussels, Belgium,* [*viviane.pierrard@aeronomie.be*](mailto:viviane.pierrard@aeronomie.be)*, Tel : +32 494212813, Fax : +32 2 3748423, Date of birth: 14-1-1971*

**Research Statement: a narrative on your scientific career in past, present and future**

Prof. Dr. Viviane Pierrard is head of the solar wind division as Senior Scientist at the Royal Belgian Institute for Space Aeronomy since 1993, and invited Professor of Physics at the Université Catholique de Louvain (since 2004). She is a space plasma physicist specializing in the solar wind and its interactions with the Earth's magnetosphere, especially the radiation belts, plasmasphere and space weather. She has more than 30 years of experience in the development of kinetic dynamical models and analysis of spacecraft observations (including ULYSSES, IMAGE, SAMPEX, Cluster, Themis and others). She also leads the team “Fundamental Science” of the Solar-Terrestrial Center of Excellence (STCE). She is Co-I of the EPT (Energetic Particle Telescope) instrument on the PROBA-V satellite launched in 2013. As scientific researcher and leader of different projects funded, among others, by ESA (GSTP), the European commission (FP7 and H2020) and the Belgian Federal Agency BELSPO (Prodex, IAP), she has acquired a significant expertise in space plasma physics. She is and has been supervisor of several PhD, master and training students, and was member of the jury of more than 30 theses.

**Short CV**

- **Head** ofSolar Wind team in Department Space Physics since 2009

- **Maître de recherches** (SW4, Senior Research leader) at BIRA-IASB, since 2013

- **Invited professor** at the Université Catholique de Louvain (UCLouvain) since 2004

- **Editor** Journal Geophysical Research Space Physics (2018-2025)

- **Head** of Fundamental Science at Solar-Terrestrial Center of Excellence (since 2009)

- **Head of the communication cell** of BIRA-IASB (2011-2014)

- **Director** of Center for Space Radiations, UCLouvain (2007-2011)

- **Research scientist** at BIRA-IASB (since 1994), permanent position since 2006

- **FNRS** (Fonds National de la Recherche Scientifique) research fellow at BIRA-IASB (1999-2002)

**- ESA** training during 3 months (1993) at ESTEC, Noordwijk, The Netherlands

**EDUCATION**

**Ph.D**. in Space Physics and Aeronomy, Université Catholique de Louvain (UCLouvain), Feb **1997**

**DEA**, Diplôme d'Etudes Approfondies in Physics, UCLouvain, summa cum laude, June **1993**

**Master** in Physics, UCLouvain, summa cum laude, June **1992**

**AWARDS**

- **Zeldovich Medal** awarded by COSPAR Committee on Space Research and the Russian Academy of Sciences, Commission C Space Studies of the Upper Atmosphere of Earth and Planets, Beijing, China, 17-7-2006.

- **Baron Nicolet Prize** awarded by the Royal Academy of Sciences of Belgium, 14-12-2002.

- **Charles Lagrange Prize** awarded by the Royal Academy of Sciences of Belgium, 16-12-2000.

- **Prize of the Belgian Physical Society** as best oral presentation, Louvain-La-Neuve, 25-5-2000.

**SUPERVISION** OF (GRADUATE) STUDENTS AND POSTDOCS, PHD JURY DUTIES

* Since 1997, supervisor of 14 master theses (at UCLouvain) and 9 training students.
* (Co-)promotor for 4 PhDs: Sofia Moschou (presented at KULeuven on 27-10-2016), K. Borremans at KU Leuven, Graciela Lopez Rosson at UCLouvain presented on 23-10-2018, Alexandre Winant started in 2022 at UCLouvain).
* Acted as PhD jury member for 30 PhD defenses, in 9 different worldwide universities.
* Supervise several PhD and postdocs of the Solar Wind division at BIRA-IASB

**TEACHING EXPERIENCE**

* invited professor at UCLouvain since 2004 for the course Physics of the upper atmosphere and space (30h).
* guest professor at KULeuven in 2016 for Capita Selecta (20h): “Mathematical aspects in space plasmas”.
* also gave courses at several summer schools (Italy, France, RDC).

**SCIENTIFIC COMMITTEES**

- Vice-President URSI Belgium since 2018 (*International Union of Radio Science*)

*-* President SRBA *(Societe Royale Belge D'astronomie, Meteorologie et Physique du Globe)* 2016-2018

*-* Secretary CNBGG (*Comité National Belge de Géodesie et de Géophysique) 2007-2010*

- President BPS (*Belgian Physical Society)* 2004-2005, Vice President 2003, 2006

- Coordinator 2005 World Year of Physics for Belgium (Einstein Year)

- Member of AGU (American Geophysical Union, Editor)

**Career path**

Viviane Pierrard is author of more than 250 scientific articles published in international refereed journals, as well as several books and a university lecture. She is also author of more than 350 scientific presentations, many on invitation, at international conferences and workshops. She co-organized and was convener of many workshops and sessions in international conferences (EGU, AGU, URSI, Space Weather Week, …). H index: 35, i10 index: 80, 4761 citations (google scholar)

Topics: solar wind, space plasmas, kinetic models, space weather, space radiations, plasmasphere, planetary atmospheres, ionosphere, satellite data, Sun-magnetosphere interactions, storms…

**Career breaks**

2 maternity leaves

**Five main publications (all peer-reviewed) and/or achievements**

- Pierrard V., M. Lazar, S. Stverak, Implications of the Kappa Suprathermal Halo of the Solar Wind Electrons, Frontiers in Astronomy and Space Sciences, 9, 2022, DOI: 10.3389/fspas.2022.892236 IF:3.49

- Pierrard V., M. Lazar, M. Maksimovic, Suprathermal populations and their effects in space plasmas: Kappa vs. Maxwellian, Chapter in book Kappa Distributions, Editors**:** M. Lazar and H. Fichtner (Springer/Nature -Astrophysics and Space Science Library), 15-38, Print ISBN 978-3-030-82622-2, 2021.

- Pierrard V., E. Botek, J.-F. Ripoll, S. A. Thaller, M. B. Moldwin, M. Ruohoniemi, G. Reeves, Links of the plasmapause with other boundary layers of the magnetosphere: ionospheric convection, radiation belts boundaries, auroral oval, Frontiers in Astronomy and Space Sciences, 8, 2021, DOI: 10.3389/fspas.2021.728531 IF: 3.49

- Pierrard V., M. Lazar, S. Stverak, Solar wind plasma particles organized by the flow speed, Solar Physics, 295, 151, 1-14, 2020, DOI: 10.1007/s11207-020-01730-z IF: 2.77

- Pierrard V., Botek, E., Ripoll,J.-F., & Cunningham, G. S., Electron dropout events and flux enhancements associated with geomagnetic storms observed by PROBA-V/EPT from 2013 to 2019. *Journal of Geophysical Research: Space Physics*, 125, 12, e2020JA028487, 2020, DOI: 10.1029/2020JA028487 IF: 2.82

**Other scientific output and impact**

- Editor of Journal of Geophysical Research: Space Physics since 2018 and editor of special issues of J. Space Weather Space Climate**,** Astronomy and Astrophysics, Journal Atmosph. Solar-Terr. Physics, Space Science Review, and a book about the plasmasphere …

- Expert reviewer and member of panels for several projects and international committees (SRAC (Sweden), NASA, ESA, EU, REA, Living with a star, NSF, ESF, FRIA, FNRS, ANR, IRCSET (Ireland), Paris Ile de France, …)

- Her kinetic solar wind and plasmasphere models are provided on ESA/SSA: <http://swe.ssa.esa.int> and NASA/CCMC <http://ccmc.gsfc.nasa.gov>

- During the last 5 years, 30 peer-reviewed articles (7 as 1st author), 4 chapters of book (1 as 1st author), 17 invited oral presentations at international conferences, many other abstracts, oral and poster presentations, co-convener of many sessions at EGU, URSI, SWWW …

**List the representative fellowships and projects**

- Fed-tWIN ENERGY**,** Particle energization in space plasmas, with KULeuven for F. Bacchini (2022-2031)

- EURAMET BIOSPHERE, Cosmic Rays, Ultraviolet Radiation and Fragility of Ozone Shield (2022-2025)

- H2020 SafespaceRadiation Belt Environmental Indicators for the Safety of Space Assets (2020-2023)

- H2020 INFRAIA PITHIA Plasmasphere Ionosphere Thermosphere (2021-2025)

- SSA RB-FAN P3-SWE-X: Space environment nowcast and forecast development - part 1 (2020-2023)

- ESA GLORAB: Global Radiation Belt Prototype for Leo Constellations (2022-2025)

* GSTP 3DEES Instrument Development With UCLouvain And Qinetiq Space (Co-I 2015-2023)
* ESA EPT Energetic Particle Telescope With UCLouvain And Qinetiq Space (Co-I 2004-2023)
* Prodex Cluster satellite data analyses (2007-2024)
* Lead of Fundamental Science in Solar-Terrestrial Center of Excellence since 2009
* FWO project Decoding the origin and the role of suprathermal populations in a non-equilibrium solar wind plasma of Marian Lazar (Co-I with S. Poedts, KULeuven) (2016-2019)

ISSI teams membership

- ISSI Radiation Belts Physics, Coordinator: J.-F. Ripoll, First Meeting: 27-31 January 2020, 2d Meeting: 11-15 April 2022, 3d meeting: 23-27 Jan 2023, Bern.

- ISSI Kappa Distributions, Coordinators: M. Lazar & H. Fichtner, Meetings 12-16 Feb 2018, 3-7 June 2019, Bern

- ISSI Beijing, Science Objectives and Observation System for the International Meridian Circle, Coordinator: M. Blanc, Meeting Sept 2019

**-** ISSIHeliospheric energy budget: from kinetic scales to global solar wind dynamics, coordinator: M. E. Innocenti, 1st meeting: 22-26 Nov 2021, 2d meeting: 8-12 August 2022, 3d: 27-31 March 2023, Bern