Curriculum Vitae – Dr. Hans Huybrighs

Linkedin
hans@cp.dias.ie
Google Scholar
Orcid: 0000-0002-6279-3515
www.hanshuybrighs.com
Github

Scientific career

2023-2028, research fellow, Dublin Institute for Advanced Studies, Dublin, Ireland
- Independent research program focused on outer planet moon-magnetosphere interaction
- Acquiring funding, supervising postdoc and interns

2022-2023, postdoctoral research fellow, *Space and Planetary Science Center, Khalifa University, Abu Dhabi, UAE*
- Visiting researcher ISSI Bern (August-September 2022). Topic: “Detecting Europa’s water plumes”, working with JUICE-PEP-NIM team.
- Research visit to Ronald Greeley Center for Planetary Studies, ASU (Nov 2022)

2019-2022, ESA postdoctoral research fellow, *ESA/ESTEC, the Netherlands*
- Science management: tasks in collaboration with JUICE project scientist
  - Design of JUICE information database requirements
  - Lead the design and implementation of the JUICE acronym database

Education

PhD, 2015-2018 **Physics, Magna Cum Laude**
Max Planck Institute of Solar System Research, Germany; Swedish Institute of Space Physics (IRF), Kiruna; Braunschweig University of Technology, Germany
Thesis: "A search for signatures of Europa's atmosphere and plumes in Galileo charged particle data"

MSc, 2012-2015 **Aerospace Engineering: Space Flight, *Cum Laude***
Delft University of Technology, the Netherlands, work conducted at Swedish Institute of Space Physics (IRF), Kiruna
Thesis: “The feasibility of in-situ observations of Europa's water vapour plumes”

BSc, 2008-2012 **Aerospace Engineering**
Delft University of Technology, the Netherlands

Grants

- 2024: Science Foundation Ireland - Frontiers for the Future Programme, Co-PI with C. Jackman. €611.115 (two postdocs).
  “How can machine learning aid discovery at outer planet moons?”

- Other competitive grants:
  - 2025: Royal Irish Academy Charlemont Grant, €2250: visit NASA Goddard & Johns Hopkins Applied Physics Laboratory
  - 2022: Visiting scientist ISSI (1 month): per diem 80 CHF/day & housing.

Competitive fellowships

- 2023-2028: DIAS astrophysics research fellowship. ~€330.000
  "Advancing our understanding of outer planet moon-magnetosphere interactions by coupling datasets and models"

- 2019-2021: ESA postdoctoral research fellowship. ~€150.000 + three conferences and two research visits/year.
  "Activity and variability of the Galilean icy moons' exospheres: measurements, modelling and predictions in the context of the JUICE mission"

Awards and distinctions

- 2022: ESA champion 2021 first prize in storytelling (more info)
- 2020: Selected as 1 of 16 nominees out of 81 applications for the PhD cup (www.phdcup.be).
- 2020: Editors' Pick in AGU Advances digest for Huybrighs et al., 2020.
- 2020: Europlanet Science Congress - Science Flash - First Prize, 3 min improvised science presentation.
- 2019: selected for Dutch national finals of Famelab: science communication competition
- 2014: '*Bronzen Galileïprijs'*: awarded by Belgian astronomy society 'VVS'

Supervision

2023 - current: postdoc supervision

- S. Cervantes: moon magnetosphere interaction, Io's extended atmosphere, machine learning.

2019 – current*:* supervision of students as main supervisor

- 6 BSc students (2-3 months) working on outer planet moons:
  - 2019, 2020 at ESA: T. Winterhalder (now ESO), R. Dayton-Oxland (now Southampton University). One first author paper each.
  - 2023: I. Ledwidge (Trinity College Dublin). Co-author on upcoming paper Casado et al.
  - 2024-2025: M. Casado (Maynooth University). 1st author paper submitted.
  - 2025: E. Marchisio (Dublin City University). Co-author on Huybrighs et al., 2025.
  - 2025: N. Vigouroux (University College Dublin).

- 1 MSc student (Sept. 2019 - June 2020). C. van Buchem (University Leiden). Joint first author on Huybrighs et al., 2024 on Io's atmosphere.

Educational tasks

2023 – current: organization of Juice winter school in Les Houches

- Scheduled for January 2026, 70 participants.

2022 - current: teaching

- 2023: University College Dublin: developed 5-lecture series (MSc level) with colleagues for space environment course. Taught one lecture on moon magnetosphere interaction.
- 2022-2023, Khalifa University: developed lectures, exercises and exam question for two courses: geology of the solar system (moons of the solar system, PhD level, two lectures) & introduction to astronomy (Jupiter and its moons, BSc level, one lecture)

Leadership roles (service to the community)

- 2025 - current: Maintenance of JUICE Magnetosphere working group page
- 2025: Supported 4th outer planet moon-magnetosphere workshop 2025, in Cologne.
- 2024: Workshop lead: 'Third outer planet moon-magnetosphere workshop 2024' Dublin. 80+ participants, 5 days. Collected 10k in funding (RAS/ESA).
- 2020: Workshop co-lead: 'Outer planet moon-magnetosphere interaction 2020' ESA, 60+ participants, 2 days.
- Session main convenor 'Environments of outer planet moons: particles, plasma, fields and dust' EPSC 2020. Session co-convenor: EGU2023, EPSC 2021, EGU 2020, EPSC 2019, session chair COSPAR 2020
- 2019 – current. Europlanet Early Career Network: co-chair of working group on future research. Involves chairing meetings, organising talks, writing articles, conducting interviews.

Memberships

- Associate scientist to the Particle Environment Package (PEP) on JUICE
- Member of JUICE geophysics and magnetosphere working groups
- AGU, IAU Junior member, Fellow of the Royal Astronomical Society

Reviewer

Journal of Geophysical Research, Space Physics & Planets; external reviewer for NASA panels; external reviewer for ESA dataset

International speaking

Invited talks include: Trinity College Dublin (2025), NASA Goddard (2024), Johns Hopkins Applied Physics Laboratory (2024), Arizona State University (2022), Imperial College London (2022), AOGS conference (2019).

Science communication

- Since 2016: Public talks: >70 (overview and videos)
- Popular science writing: 15 contributions, blogs and paid articles for magazines (overview)
- Media appearances (TV, radio, webarticles, newspapers, overview)
- 2008 – 2015, volunteer in youth organisation for astronomy Descartes (Cosmodrome, Belgium) Members: 40-50. Workload: 6-8hrs/week. President of organisation (2010-2013).
    - 2011: responsible for the astronomy introduction course (>30 participants, 10 lessons). Tasks include: developing program, scheduling lecturers, rewriting lecture book, promoting the course, making the budget, lecturing.

Additional skills and training

- *Computer*: Python, IDL, Matlab, Java, Git, Spice, Linux, numerical simulations, data analysis
- 2023: *Project Management* (20 hrs, Growth Tribe)
- *Science communication*: Summer School Science Communication (Leiden University, 5 days, July 2021); PhD cup media training (4 days, 2020); TU Delft Science Communication training session (2 half days, 2019); FameLab Masterclass in Science Communication (2 days, 2019)
- *Space*: Human Spaceflight (5 days, ESA) Design of Space Missions and Systems (5 days, ESA, 2020); EU & Space Policy (1 day ESA, 2020); Ladybird guide to Spacecraft Operations (4 day ESA, 2019)
- 2021*:* COSPAR Leadership Workshop (3 half days)

Scientific publications (ORCID: 0000-0002-6279-3515)

Peer reviewed publications: 21 In review: 2
Publications in preparation: 3 White papers: 4

(*** denotes student supervised by me, ** denotes postdoc supervised by me)

In review

23. Energetic Proton Losses Near Io: Indications of Charge Exchange With the Atmosphere and Corona. S. Cervantes**, **H.L.F. Huybrighs**, P. Kollmann, V. Dols, M.K.G. Holmberg, C.M. Jackman. JGR Space Physics, in review. https://doi.org/10.22541/essoar.176677881.19114982/v1

22. M. Casado-Anarte***, **H. L. F. Huybrighs**, S. Cervantes**, C. Plainaki L. C. Quick, S. Brophy Lee, I. Ledwidge***, N. Vigouroux***. Large Water Plume Deposits on Europa are Short Lived. JGR Planets, in review. https://doi.org/10.22541/essoar.175682807.70950899/v1

2026

21. Auroral Emissions on Ganymede: New Constraints on Their Electron Energy Dependence. Xin Cao, Mika K.G. Holmberg, Caitriona Jackman, **Hans Huybrighs**, Sebastian Cervantes, Audrey Vorburger. Journal of Geophysical Research Letters. http://dx.doi.org/10.1029/2025GL119071

20. Io and the Minor Jovian Moons – Prospects for JUICE. Tilmann Denk et al., including **H.L.F. Huybrighs**. Space Science Reviews. https://doi.org/10.1007/s11214-025-01263-6

2025

19. Mercury's Altered Magnetosphere during a Sub-Alfvénic ICME Event: MESSENGER Observations and Inferred Asymmetric Alfvén Wing Formation from Global MHD Simulations. Charles F. Bowers, Caitríona M. Jackman, Xianzhe Jia, Lina Z. Hadid, Weijie Sun, Laura A. Hayes, Ryan M. Dewey, Brandon Burkholder, Daragh M. Hollman, Sebastian Cervantes, **Hans L. F. Huybrighs**, Matthew J. Rutala. JGR Space Physics. https://doi.org/10.1029/2025JA034248

18. **H.L.F. Huybrighs**, S. Cervantes***, P. Kollmann, C. Paranicas, C.F. Bowers, X. Cao, M.K.G. Holmberg, C.M. Jackman, S. Brophy Lee, A. Bloecker, E. Marchisio***. *Energetic proton dropouts during the Juno flyby of Europa strongly depend on magnetic field perturbations*. JGR Space Physics. https://doi.org/10.1029/2025JA034000

17. 19. G. Clark + 12 including **H.L.F. Huybrighs**. *Energetic ion losses observed during Juno's close encounter with Europa*. JGR Space Physics. https://doi.org/10.1029/2024GL113100

16. C.F. Bowers, C.M. Jackman, X. Jia, J.A. Slavin, J. Saur, M.K.G. Holmberg, R.M. Dewey, D. Heyner, F. Elekes, L.Z. Hadid, B. Lavraud, Y. Wang, **H.L.F. Huybrighs**, M.J. Rutala, A.R. Fogg, S. Brophy Lee and D.M. Hollman. *MESSENGER Observations of a Possible Alfvén Wing at Mercury Driven by a Low Alfvénic Mach Number ICME* (open access). JGR Space Physics. https://doi.org/10.1029/2024JA033619

15. A. Beth, M. Galand, R. Modolo, X. Jia, F. Leblanc and **H.L.F. Huybrighs.** *Ionosphere of Ganymede: Galileo observations versus test particle simulation* (open access). MNRAS. https://doi.org/10.1093/mnras/staf313

14. A. Masters + 70 including **H.L.F. Huybrighs**. *Magnetosphere and Plasma Science with the Jupiter Icy Moons Explorer* (open access). Space Science Reviews. https://doi.org/10.1007/s11214-025-01148-8

13. L. Roth +26 including **H.L.F. Huybrighs**. *Mass supply from Io to Jupiter's magnetosphere* (open access). Space Science Reviews. https://doi.org/10.1007/s11214-025-01137-x

2024

12. M.K.G. Holmberg, C.M. Jackman, M.G.G.T Taylor, O. Witasse, J.-E. Wahlund, S. Barabash, B. Michotte de Welle, **H.L.F Huybrighs**, C. Imhof, F. Cipriani, G. Deprez, N. Altobelli. *Surface charging of the Jupiter Icy Moons Explorer (JUICE) spacecraft in the solar wind at 1 AU*. *JGR Space Physics*. https://doi.org/10.1029/2023JA032137

11. F. Tosi + 46 including **H.L.F. Huybrighs**. *Characterization of the surfaces and near-surface atmospheres of Ganymede, Europa and Callisto by JUICE*. Space Science Reviews. https://doi.org/10.1007/s11214-024-01089-8

10. O. Rüsch, M. Hess, C. Wöhler, V.T. Bickel, R.M. Marshal, M. Patzek, **H.L.F. Huybrighs**. *Discovery of a Dust Sorting Process on Boulders Near the Reiner Gamma Swirl on the Moon*. J*GR Planets.* https://doi.org/10.1029/2023JE007910

9. **H.L.F. Huybrighs**, C.P.A. van Buchem***, A. Blöcker, V. Dols, C.F. Bowers, C.M. Jackman. *Energetic proton losses reveal Io's extended and longitudinally asymmetrical atmosphere*. JGR Space Physics. https://doi.org/10.1029/2023JA032371 or http://arxiv.org/abs/2407.02166

2023

8. **H.L.F. Huybrighs**, A. Blöcker, E. Roussos, C. van Buchem***, Y. Futaana, M. K. G. Holmberg, C. Goetz and O. Witasse. E*uropa's Perturbed Fields and Induced Dipole Affect Energetic Proton Depletions During Distant Alfvén Wing Flybys*. Journal of Geophysical Research, Space Physics. https://doi.org/10.1029/2023JA031420

7. R. Dayton-Oxland***, **H.LF. Huybrighs**, T. Winterhalder***, A. Mahieux, D. Goldstein. *In-situ detection of Europa's water plumes is harder than previously thought*. Icarus. https://doi.org/10.1016/j.icarus.2023.115488

2021

6. T. Winterhalder*** and **H.L.F. Huybrighs**. A*ssessing JUICE's Ability to detect Europa Plumes in situ*. Planetary and Space Science. https://doi.org/10.1016/j.pss.2021.105375

5. M.K.G. Holmberg, F. Cipriani, T. Nilsson, S. Hess, **H.L.F. Huybrighs**, L.Z. Hadid, G. Déprez, R. Wilson, M.W. Morooka, M. Felici. *The Cassini ion wake characteristics revealed by comparing Langmuir probe measurements and SPIS simulations: implications for in-situ data analyses and ion temperature estimates*. Journal of Geophysical Research: Space Physics. https://doi.org/10.1029/2020JA029026

4. **H.L.F. Huybrighs**, E. Roussos, A. Blöcker, N. Krupp, Y. Futaana, S. Barabash, L. Z. Hadid, M. K. G. Holmberg and O. Witasse. *Reply to comment on "An Active Plume Eruption on Europa During Galileo Flyby E26 as Indicated by Energetic Proton Depletions."* Geophysical Research Letters. https://doi.org/10.1029/2021GL095240

2020

3. **H.L.F. Huybrighs**, E. Roussos, A. Blöcker, N. Krupp, Y. Futaana, S. Barabash, L. Z. Hadid, M. K. G. Holmberg, O. Lomax and O. Witasse. *An Active Plume Eruption on Europa During Galileo Flyby E26 as Indicated by Energetic Proton Depletions.* Geophysical Research Letters. https://doi.org/10.1029/2020GL087806

2019

2. Gianluca Carnielli, M Galand, François Leblanc, L Leclercq, Ronan Modolo, A Beth, **H.L.F. Huybrighs,** X Jia. *First 3D test particle model of Ganymede's ionosphere.* Icarus. https://doi.org/10.1016/j.icarus.2019.04.016

2017

1. **H.L.F. Huybrighs**, Y. Futaana, S. Barabash, M. Wieser, P. Wurz, N. Krupp, KH. Glassmeier, B. Vermeersen. *On the in-situ detectability of Europa's water vapour plumes from a flyby mission*. Icarus. https://doi.org/10.1016/j.icarus.2016.10.026

White papers (non-peer reviewed)

1. V.J. Sterken + 40 co-authors including H.L.F. Huybrighs DOLPHIN. *The Dust Observatory to study the LIC, interPlanetary dust, and Heliospheric Interactions in our Neighborhood. An F-class mission proposal to ESA.*
2. I. J. Cohen + 26 co-authors including **H. Huybrighs**. *The case for studying other planetary magnetospheres and atmospheres in Heliophysics*. NASA Solar and Space Physics (Heliophysics) Decadal Survey white paper. 2022.
3. P. Kollmann + 50 co-authors including **H. Huybrighs**. *Jupiter's radiation belts as a target for NASA's Heliophysics Division*. NASA Solar and Space Physics (Heliophysics) Decadal Survey white paper. 2022.
4. F. Crary, G.B. Clark, P. Delamere, C. Dong, R.W. Ebert, C. Harris, G Hospodarsky, S. Hsu, **H. Huybrighs**, A. Kotova, T. Livengood, C. Paranicas, K. Retherford, E. Roussos, Y. Sarkango, J. Saur, J.R. Szalay, M. Vogt and L. Wang. (2021) *The Magnetosphere of Jupiter: Moving from Discoveries Towards Understanding. White paper for NASA decadal survey.* Bulletin of the AAS https://doi.org/10.3847/25c2cfeb.9caa18e1
5. P. Kollmann and 80 other authors including **H.L.F Huybrighs**. Magnetospheric Studies: *A requirement for addressing interdisciplinary mysteries in the Ice Giant systems. White paper for NASA decadal survey. Bulletin of the AAS*. https://doi.org/10.3847/25c2cfeb.d955f654

Technical publications

1. P. Kollmann, C. Paranicas, A. Lagg, **H. L. F. Huybrighs**, E. Roussos, Z. H. Lee-Payne, M. Kusterer, N. Krupp, D. Smith, J. Vandegriff *Galileo/EPD user guide*. In preparation.
2. O. Witasse, A. Solomonidou, L. Hadid, M. Holmberg, **H. Huybrighs**. *The JUICE Science Website Requirements Document*. 2021.
3. **H. Huybrighs**. *PEP internal charging study* (JUI-IRF-PEP-RP-009). 2014. 71 pages.

Code releases

1 Marina Casado***, Isabelle Ledwidge***, & **Hans Huybrighs**. (2025). Plume deposit model. https://doi.org/10.5281/zenodo.16780641

2 H.L.F. Huybrighs. Ion particle tracing code. 2025. https://doi.org/10.5281/zenodo.15924107

3 D.M. Hollman, C.M. Jackman, C.K. Louis, **H.L.F. Huybrighs**, M.J. Rutala, S.C. McEntee. Juno Universal Plotting Tool https://github.com/daraghhollman/JUPT

Scientific presentations

Oral presentations at international conferences: 13
Poster presentations at international conferences: 21
Research seminars: 25

Oral presentations at scientific conferences

1. **Hans Huybrighs**, S. Cervantes, P. Kollmann, C. Paranicas, C.F. Bowers, X. Cao, M.K.G. Holmberg, C.M. Jackman, S. Brophy Lee, A. Blocker, E. Marchisio. *Energetic proton dropouts during the Juno flyby of Europa strongly depend on magnetic field perturbations*. Outer Planet Moon Magnetosphere Interaction Workshop. Cologne, Germany. March 2025.
2. **Hans Huybrighs**, Christiaan Van Buchem, Aljona Bloecker, Vincent Dols, Charles Bowers, Caitriona Jackman. *Energetic proton losses reveal Io's extended and longitudinally asymmetrical atmosphere*. Outer Planet Moon Magnetosphere Interaction Workshop, Dublin. May 2024.
3. **Hans L.F. Huybrighs**, Rowan Dayton-Oxland, Thomas Winterhalder, Arnaud Mahieux, David Goldstein, Audrey Vorburger, André Galli, and Peter Wurz. *Detecting Europa's water plumes with JUICE's particle instruments*. European Planetary Science Congress. September 2022. Granada.
4. Mika K.G. Holmberg, Caitriona Jackman, Matthew G.G.T. Taylor, Olivier Witasse, Jan-Erik Wahlund, Stas Barabash, Nicolas Altobelli, Fabrice Cipriani, Grégoire Déprez, and **Hans L.F. Huybrighs.** *Surface charging of JUICE in the solar wind**.*** European Planetary Science Congress. September 2022. Granada.
5. **H. Huybrighs**, A. Blöcker, E. Roussos, C. van Buchem, Y. Futaana, M. Holmberg, C. Götz and O. Witasse*. The effect of Europa's perturbed electromagnetic fields and induced dipole on energetic proton depletions in the Alfvén wings.* Europlanet Science Congress. September 2021. Online.
6. M.K.G. Holmberg, F. Cipriani, G. Déprez, C. Imhof, O. Witasse, N. Altobelli, **H. Huybrighs**. *Spacecraft charging of JUICE in the auroral zone of Ganymede.* Europlanet Science Congress. September 2021. Online.
7. **H. Huybrighs**, C. van Buchem, A. Blöcker, E. Roussos, N. Krupp, V. Dols, Y. Futaana, S. Barabash, O. Witasse, M. Holmberg. *Plumes and atmospheric charge exchange as a cause of energetic ion losses near Europa and Io*. COSPAR Scientific Assembly. January 2021, Sydney, Australia. Video.
8. **H.L.F. Huybrighs**, E. Roussos, N. Krupp, M. Fraenz, Y. Futaana, S. Barabash. *Signatures of Europa's Atmosphere in Galileo Data*. Asia-Oceania Geophysics Society Congress 2019. Singapore. **Invited**
9. **H.L.F. Huybrighs**, E. Roussos, N. Krupp, M. Fraenz, Y. Futaana, S. Barabash. *Signatures of Europa's atmosphere in Galileo EPD data*. Outer planet moon-magnetosphere interactions 2019, Selfoss, Iceland.
10. **H.L.F. Huybrighs**, Elias Roussos, Norbert Krupp, Markus Fraenz, Yoshifumi Futaana, Stas Barabash, Karl-Heinz Glassmeier. *Are there signatures of active Europa plumes in Galileo in-situ data?* European Planetary Science Congress 2017, Vienna, Austria.
11. **H. Huybrighs**, E. Roussos, N. Krupp, M. Fränz, Y. Futaana, S. Barabash, K.-H. Glassmeier. *The search for signatures of Europa plumes in Galileo in-situ data.* Rocks 'n' Stars II, 2017, Göttingen, Germany.
12. **H. Huybrighs**, Y. Futaana, S.Barabash, M. Wieser, P. Wurz, N. Krupp, E. Roussos, M. Fränz, K.-H. Glassmeier, and B.Vermeersen. *Feasibility study of*

the in-situ detectability of Europa's neutral and plasma plumes from a flyby mission. Europa-Enceladus Plumes Workshop, Caltech, October 15, 2016.

13. **H. Huybrighs**, Y. Futaana, S. Barabash, M. Wieser, P. Wurz, N. Krupp, K.-H. Glassmeier, and B. Vermeersen. *Feasibility study of in-situ measurements of Europa's neutral and plasma plumes with JUICE/PEP.* Geophysical Research Abstracts Vol. 18, EGU2016-13425, 2016 EGU General Assembly 2016, Vienna.

Oral presentations by students supervised by me

1. T. Winterhalder, **H. Huybrighs**. *JUICE's ability of in situ plume detection in Europa's atmosphere*. Europlanet Science Congress, September 2021. Online, oral requested.
2. R. Dayton-Oxland, **H. Huybrighs**, A. Mahieux, D. Goldstein, T. Winterhalder. *Impact of using a collisional plume model on detecting Europa's water plumes from a flyby*. Outer planet moon - magnetosphere interaction workshop 2020. ESA/ESTEC
3. C. van Buchem, **H. Huybrighs**, A. Blöcker, V. Dols, O. Witasse, and Y. Miguel. *Energetic proton depletion near Io: atmospheric charge exchange and inhomogeneous magnetic and electric fields*. European Planetary Science Congress 2020. Granada/Online.

Poster presentations at scientific conferences

1. **Hans L.F. Huybrighs**, Christiaan van Buchem, Aljona Bloecker, Vincent J. Dols, Charles F. Bowers, Caitriona M. Jackman, Sebastián Cervantes. *Energetic Proton Losses Reveal Io's Extended and Longitudinally Asymmetrical Atmosphere.* AGU, Washington DC. December 2024.
2. **Hans L.F. Huybrighs**, Sebastián Cervantes, George Clark, Peter Kollmann, Charles F. Bowers, Caitriona M. Jackman. *Simulations of Energetic Ion Dropouts During the Juno Flyby of Europa*. AGU, Washington DC. December 2024.
3. **Hans Huybrighs**, Rowan Dayton-Oxland, André Galli, Audrey Vorbuger, Martina Föhn, Peter Wurz, Arnaud Mahieux, David Goldstein, Thomas Winterhalder, and Stas Barabash. *Detecting Europa's water plumes with the Particle Environment Package on JUICE. European Geophysical Union*, May 2023, Vienna.
4. **Hans Huybrighs**, Aljona Blocker, Elias Roussos, Christiaan van Buchem, Mika Holmberg, Charlotte Goetz, Yoshifumi Futaana, Olivier Witasse, Ioannis Kourakis. *The effect of perturbed fields, charge exchange and plumes on energetic proton depletions during the Galileo flybys of Europa*. Magnetospheres of Outer Planets 2022. Liege.
5. **Hans Huybrighs**, Aljona Bloecker, Elias Roussos, Christiaan Van Buchem, Yoshifumi Futaana, Mika Holmberg, Charlotte Goetz and Olivier Witasse. *The Effect of Europa's Perturbed Electromagnetic Fields and Induced Dipole on Energetic Proton Depletions in the Alfvén Wing*. AGU fall meeting 2021, New Orleans.
6. **H. Huybrighs**, A. Blöcker, E. Roussos, C. van Buchem, Y. Futaana, M. Holmberg, C. Götz and O. Witasse*. The effect of Europa's induced dipole and plumes on energetic proton depletions in the Alfvén wings*. Magnetospheres of Outer Planets (MOP). July 2021. Online.

7. M.K.G. Holmberg, F. Cipriani, T. Nilsson, S. Hess, **H.L.F. Huybrighs**, L.Z. Hadid, G. Déprez, R. Wilson, M.W. Morooka, M. Felici. *Simulations of the Cassini spacecraft charging and ion wake: implications for in-situ data analyses and ion temperature estimates in Saturn's inner magnetosphere.* Magnetospheres of Outer Planets (MOP). July 2021. Online.
8. **H. Huybrighs**, A. Blöcker, E. Roussos, C. van Buchem, N. Krupp, Y. Futaana, S. Barabash, M. Holmberg, and O. Witasse*. Energetic proton depletions near Europa: the effect of plumes, atmospheric charge exchange, Alfvén wings and the wake.* American Geophysical Union Fall Meeting 2020*.*
9. **H. Huybrighs**, A. Blöcker, E. Roussos, C. van Buchem, N. Krupp, Y. Futaana, S. Barabash, M. Holmberg, O. Witasse. *Energetic proton depletions near Europa: the effect of plumes, atmospheric charge exchange, Alfvén wings and the wake*. Outer planet moon - magnetosphere interaction workshop 2020. ESA/ESTEC
10. **H. Huybrighs**, A. Blöcker, E. Roussos, C. van Buchem, N. Krupp, Y. Futaana, S. Barabash, M. Holmberg, and O. Witasse*. Energetic proton depletions near Europa: plumes, atmospheric charge exchange and Alfvén wings*. European Planetary Science Congress 2020. Granada/Online.
11. M. Holmberg, F. Cipriani, G. Déprez, C. Imhof, O. Witasse, N. Altobelli, H. **Huybrighs**, and J.-E. Wahlund. *Variability of the plasma environment of the Jovian magnetosphere and implications for future particle and fields measurements by JUICE*. European Planetary Science Congress 2020. Granada/Online.
12. **H. Huybrighs**, C. van Buchem, A. Blöcker, E. Roussos, N. Krupp, V. Dols, F. Yoshifumi, S.Barabash, O. Witasse, M. Holmberg. *Energetic ion depletions near Europa and Io: the effect of plumes and atmospheric charge exchange*. European Geophysical Congress 2020, Vienna/online
13. M. Holmberg, F. Cipriani, **H. Huybrighs**, L. Hadid, G. Deprez. *How are the Cassini in-situ measurements affected by the presence of the spacecraft? Spacecraft - plasma interaction simulation results compared to in-situ measurements.* The 16th Spacecraft Charging Technology Conference 2020, Florida, US.
14. **H. Huybrighs**, E. Roussos, N. Krupp, M. Fränz, Y. Futaana, S. Barabash, A. Blöcker, V. Dols, and O. Witasse. *Energetic ion depletions near the Galilean moons: atmospheric interaction and indications of the charge state.* European Planetary Science Congress, 2019, Geneva.
15. **H.L.F. Huybrighs**, E. Roussos, N. Krupp, M. Fraenz, Y. Futaana, S. Barabash, K.-H Glassmeier. *Signatures of Europa's atmosphere in Galileo EPD data during the E12 flyby*. Magnetospheres of Outer Planets 2018.
16. G. Carnielli, M. Galand, R. Modolo, F. Leblanc, A. Beth, **H.L.F. Huybrighs**, X. Jia *Constraining Ganymede's neutral and plasma environment through numerical simulations of its ionosphere*. Magnetospheres of Outer Planets 2018.
17. G. Carnielli, M. Galand, R. Modolo, F. Leblanc, A. Beth, **H.L.F. Huybrighs**, X. Jia. *Constraining Ganymede's exosphere through numerical simulations of its ionosphere and Galileo observations*. European Planetary Science Congress 2018
18. **H.L.F. Huybrighs**, E. Roussos, N. Krupp, M. Fraenz, Y. Futaana, S. Barabash, K.-H. Glassmeier. *The search for active Europa plumes in Galileo plasma particle detector data: the E12 flyby.* AGU fall meeting 2017. New Orleans, US.
19. **H. Huybrighs**, E. Roussos, N. Krupp, M. Fraenz, Y. Futaana, S. Barabash, K.-H. Glassmeier. *The search for Europa plume signatures in Galileo plasma particle data*. Magnetospheres of Outer Planets 2017. Uppsala, Sweden.

20. N.Krupp, M. Fraenz, E. Roussos, **H. Huybrighs**, S. Barabash, P.C. Brandt, C. Paranicas, D.G. Mitchell, Joseph Westlake, K. Khurana, X. Jia. *Electron measurements in the low latitude mangetosphere of Jupiter and in the vicinity of the Galilean moons: Current knowledge and future investigations with the PEP JEI and JoEE sensors onboard the JUICE spacecraft*. Magnetospheres of Outer Planets 2017. Uppsala, Sweden.
21. **H. Huybrighs**, E. Roussos, N. Krupp, M. Fraenz, Y. Futaana, S. Barabash, and K.-H. Glassmeier. *The search for Europa plume signatures in Galileo in-situ data.* DPG Frühjahrstagung 2017 (German Physical Society Spring Meeting), Bremen, March 14, 2017.

Research seminars

1. Studying the interaction of Europa and Io with Jupiter's magnetosphere in preparation of Juice. Trinity College Dublin. January 2025.
2. Simulations of energetic ion dropouts during the Juno flyby of Europa. Johns Hopkins Applied Physics Laboratory. December 2024.
3. Studying Io and Europa's atmospheres, plumes and magnetospheric interaction using energetic ion measurements. NASA Goddard. December 2024.
4. Simulations of energetic ion dropouts during the Juno flyby of Europa. August 2024. NASA Juno team meeting. Copenhagen, Denmark.
5. Energetic ions at Europa and Io. Particle Environment Package team meeting. Goettingen, Germany. March 2024.
6. Studying Io and Europa's atmospheres, plumes and magnetospheric interaction using energetic ion dropouts. Johns Hopkins Applied Physics Laboratory. December 2023.
7. Europa and Io: atmospheres, plumes and energetic ions. Southampton University, UK. October 2023.
8. In-situ detection of Europa's plume using (charged) particle detectors on Galileo and JUICE. Online for Europa Clipper plume working group.
9. Europa's water plumes. Arizona State University, USA. November 2022
10. Europa's water plumes. Royal Observatory, Belgium. October 2022.
11. Europa's water plumes. ETHZ, Zurich, Switzerland. September 2022.
12. Europa's water plumes. University of Bern, Switzerland. August 2022
13. Detecting Europa's water plumes using energetic protons. MSSL, UK. May 2022.
14. Detecting Europa's water plumes using energetic protons. Imperial College, London. May 2022.
15. Europa's water plumes. Technical University of Delft. October 2020.
16. Europa's water plumes. European Space Agency Science Seminar. June 2020.
17. Europa's water plumes. Advanced concepts team European Space Agency. April 2020.
18. Signatures of plumes and atmospheric charge exchange in energetic ion data from Europa. ESA, November 2019.
19. How do Jupiter's icy moons interact with the magnetosphere? Leiden University, July 2019.
20. Europa's water plumes, will we get to detect them with JUICE? ESAC, June 2019.
21. Europa's plumes and atmosphere, what we can (still) learn from Galileo's charged particle data. Technical University of Delft. March 2019.

22. *Getting something out of nothing. The search for Europa plume signatures in Galileo particle detector data.* Swedish Institute of Space Physics (IRF). 8th of June 2017.
23. *Tasting Europa's ocean The search for Europa plume signatures in Galileo particle detector data.* Max Planck Institute for Solar System Research. 10th of May 2017.
24. *In-situ detectability of Europa's water vapour plumes.* Max Planck Institute for Solar System Research. 6th of July 2016.
25. *Tasting Europa's ocean: the feasibility of in-situ observations of Europa's water vapour plumes.* Swedish Institute of Space Physics (IRF). 19th of Nov 2015. *PEP internal charging study: the results.* Swedish Institute of Space Physics (IRF). 20th of Feb 2014.

Overview science communication

Outreach talks since 2016: > 70
Popular science articles: 14

Selected presentations to non-scientific audiences (since 2016)

1. 20.000 leagues under an alien ocean. St. Columba's College. Dublin. 27 May 2025.
2. The moon is boring. Pint of Science, Dublin. 20 May 2025.
3. 20,000 Leagues Under an Alien Ocean. Armand Pien Observatory, Gent. 29 March 2025.
4. 20,000 Leagues Under an Alien Ocean. Astrofest, Galway. 8 February 2025.
5. Satellite data. Astronomy camp JVS-Descartes. Veurne. 3 August 2024.
6. Exploring the Moons of our Solar System. Online for Adamjee Cantonment Public School, Dhaka, Bangladesh. 25 June 2024.
7. 20.000 mijlen onder een buitenaardse oceaan (20.000 leagues under an extraterrestrial ocean) for Studium Generale Maastricht University, the Netherlands. 22nd February 2024.
8. 20.000 mijlen onder een buitenaardse oceaan (20.000 leagues under an extraterrestrial ocean) for ie-net. UHasselt, Belgium. 21st February 2024.
9. 20.000 mijlen onder een buitenaardse oceaan (20.000 leagues under an extraterrestrial ocean) (video). Keynote at PhD cup, October 2022.
10. Is there life on Europa? (video) For Lecturers Without Borders & Art of Inquiry. Online. 8 August 2022.
11. Is there life on Europa? Lecturers Without Borders. Ben Bella Secondary School, Stone Town, Zanzibar. 25 July 2022.
12. Is there life on Europa? Astronomy Club Saintgits College of Engineering India, online. 21 July 2022.
13. Is there life on Europa? Astronomy Club Khalifa University, UAE. 10 May 2022.
14. Skype a scientist. Volga Christian School. 24 February 2022.
15. Is there life on Europa? Physics student society, Gent University. 22 November 2021.
16. How do we study other planets? (video) Croatian high school teachers. 16 November 2021.
17. Volcanoes across the solar system. (video) Lecturers without borders. 8 November 2021.
18. Skype a scientist. Passmore elementary, Alvin. 6 April 2021
19. Lecturers without borders. 23 March 2021
20. Skype a scientist. St. Mary's Visitation, Elm Grove. 24 February 2021.
21. Skype a scientist. St. Mary Parish School, Menomonee Falls. 10 February 2021.
22. Skype a scientist. St. Mary Parish School, Menomonee Falls. 5 February 2021.
23. Skype a scientist. Basilica School of Saint Mary. 27 January 2021
24. Skype a scientist 2x. Basilica School of Saint Mary. 21 January 2021
25. Skype a scientist. Dobbs Ferry High School. 21 December 2020.
26. Buitenaards detectivewerk (online), Cozmix, Brugge. 9 December 2020
27. Alien detective work. VVS/JVS weekend. Cosmodrome, Genk. 3 October 2020
28. Alien detective work, PhD cup semi-finals, Brussels. 23 September 2020
29. Manen van ijs en vuur (Moons of Ice and Fire). Sound of Science**,** science festival, 6 September 2020. (cancelled because of pandemic)

30. Online presentation and Q&A about Starlink en BepiColombo. Youth organisation for Astronomy, Belgium, 3 May 2020
31. Twintigduizend mijlen onder een buitenaardse zee (Twenty thousand leagues under an alien ocean). Sterrenwacht Copernicus. 16 April 2020 (cancelled because of pandemic)
32. Manen van ijs en vuur (Moons of Ice and Fire). Descartes youth symposium. 28 March 2020 (cancelled because of pandemic)
33. Online astronomy Q&A. International School of Amsterdam. 23 March 2020
34. Watervulkanen op Europa, proeven van een buitenaardse oceaan (Water volcanoes on Europa, a tast of an extraterrestrial ocean). Galileo, KNVWS afd. Zuid-Limburg. 23 November 2019
35. Moons of Ice and Fire. Space storytellers, ESA open day. Noordwijk, the Netherlands. 7 October 2019
36. Science show exoplanets. ESA open day. Noordwijk, the Netherlands. 7 October 2019
37. Science show moons. ESA open day. Noordwijk, the Netherlands. 7 October 2019
38. Europa: a taste of an extraterrestrial ocean. Bessensap 2019, Amsterdam, the Netherlands. 21 June 2019
39. Moons of Ice and Fire. Astronomy on Tap Leiden (video), the Netherlands. 27 May 2019
40. Watervulkanen op Europa, proeven van een buitenaardse oceaan (Water volcanoes on Europa, a tast of an extraterrestrial ocean). JWG Leiden, Nederland. 10 May 2019
41. Moons of Ice and Fire. Nederlandse Famelab Finale NL (video). Tivoli, Utrecht, the Netherlands. 9 May 2019
42. Europa: a taste of an extraterrestrial ocean (video). Winning presentation Famelab Delft. 3 April 2019.
43. Water volcanoes on Europa, tasting an extraterrestrial ocean. Sunnulækjarskóli, Selfoss, Ijsland. 11 February 2019.
44. Water volcanoes on Europa, tasting an extraterrestrial ocean.
45. New Zealand Astrobiology Network (NZAN), Lower Hutt, New Zealand. 2 November 2018
46. Water volcanoes on Europa, tasting an extraterrestrial ocean.
47. Water volcanoes on Europa, tasting an extraterrestrial ocean. Taita College, Lower Hutt, New Zealand. 2 November 2018.
48. Water volcanoes on Europa, tasting an extraterrestrial ocean. Auckland Astronomical Society. Auckland, New Zealand. 22 October 2018.
49. Watervulkanen op Europa, proeven van een buitenaardse oceaan (Water volcanoes on Europa, a tast of an extraterrestrial ocean). Cosmodrome, Genk, *Belgium*. 15 March 2018.
50. Water volcanoes on Europa, tasting an extraterrestrial ocean. Otto-Hahn-Gymnasium, Göttingen, Germany. 30 November 2017.
51. Planet 9. Summercamp JVS-Descartes, Zutendaal, Belgium. July 2017.
52. Volcanism in the solar system, science show. Night of Science. Max Planck Institute for Solar System Research, Göttingen, Germany. 21 January 2017.
53. Water volcanoes on Europa: tasting an extraterrestrial ocean. Science Slam. Max Planck Institute for Solar System Research, Göttingen, Germany. 15 July 2016.

Cultural collaborations

- Space sarau, Munganga theater, Amsterdam, 28 Mei 2020 (cancelled because of pandemic)
- Navigating by the stars. Maori weekend (visit of native New Zealenders), Museum Volkenkunde Leiden, 2 Mei 2020 (cancelled because of pandemic)
- Sounds of Interstellar Space, lecture with jazz trio Trifid (website). Noordwijk, Space Expo. 24 January 2020
- Sounds of Interstellar Space, lecture with jazz trio Trifid (website). Bovenkarspel, sterrenwacht Orion. 11 January 2020
- Sounds of Interstellar Space, lecture with jazz trio Trifid (website). Utrecht, sterrenwacht Sonnenborgh. 10 January 2020

Written science communication

Book

- Children's book on Science facts (appearing end of 2021) by Angelique van Ombergen: I fact checked and made suggestions for the chapter on space.

Op-ed

- Kritische vragen over klimaatverandering zijn nuttig, maar we mogen niet in herhaling vallen (Critical questions about climate change are useful, but we shouldn't keep repeating ourselves, link). Knack, Januari 2019.

Popular scientific writing

1. Europa verkent buitenaardse manen (Europe explores alien moons). Eos magazine. March 2025.
2. Kosmisch overgewicht: waarom sterren, planeten en manen rond zijn (Cosmic overweight: why stars, planets and moons are round). For EOS blogs with Wout Goesaert. July 2022.
3. Geiser op Europa en de zoektocht naar buitenaardsleven (Geisers on Europa and the search for extraterrestrial life). Zenit magazine. November 2021.
4. Leeft ET op Europa? (Does ET live on Europa?) EOS special on astronomy. October 2021.
5. Planeten verkennen: meer 'Men in black' dan 'Star trek' (Exploring planets: more 'Men in Black' than 'Star Trek', link). EOS blogs. April 2021.
6. Leeft ET op Europa? (Does ET live on Europa?, link) EOS Magazine. April 2021.
7. Buitenaards detectivewerk (Extraterrestrial detective work, link). EOS wetenschap. September 2020.
8. Neen, de eerste bewoonbare exoplaneet kennen we nog niet (No, we haven't identified the first habitable exoplanet yet, link). EOS wetenschap. Augustus 2020.
9. De leefbare zone bestaat niet (The habitable zone doesn't exsist, link). EOS wetenschap. February 2020.
10. Manen van ijs en vuur (Moons of ice and fire, link). EOS wetenschap. November 2019.
11. Twintigduizend mijlen onder een buitenaardse zee (Twenty thousand leagues under an alien ocean, link). EOS wetenschap, September 2019

12. Water volcanoes on Europa, a tast of an extraterrestrial ocean. Heelal, Januari 2019.
13. Plumes on Europa – tasting an extraterrestial ocean. Room, the space journal. April 2017.
14. In-situ observations of Europa's plumes. Leonardo Times. April 2016.

Workshops

- Op zoek naar buitenaardsleven ('the search for extraterrestrial life'). Tajo, Gent. 29 May 2021
- Hoe weten we de Jupitermaan Europa een ondergrondse oceaan heeft? (How do we know that Jupiter's moon Europa has a subsurface ocean? Interactive online workshop). 14 November 2020, Jongerenvereniging voor Sterrenkunde, Belgium
- Hoe land ik op een andere planeet? (How to land on another planet) Sound of Science science festival. 5-6 September 2020 (cancelled because of pandemic)
- Hoe land ik op een andere planeet (how to land on another planet)? Kinderuniversiteit Antwerpen. 8 Maart 2020 (cancelled because of pandemic)
- Nepnieuws (fakenews): teach kids how to recognize fakenews and how to find reliable information on science. JVS-Descartes, Cosmodrome, Genk. 16 Maart 2019.
- Landen op een andere planet (how to land on another planet): Zomerkamp JVS-Descartes, Born *België*. 2014.