

TOM A. NORDHEIM: CANDIDATE FOR COMMITTEE

Education:

- 2016: Ph.D., Space Physics, Mullard Space Science Laboratory, University College London
- 2010: M.Sc., Space Studies, International Space University
- 2009: B.Sc., Space Science & Robotics, University of Wales, Aberystwyth

Career:

- 2024 – present: Senior Professional Staff and Manager of the Magnetosphere-Ionosphere Coupling Section, Johns Hopkins Applied Physics Laboratory, Laurel, Maryland
- 2018 – 2024: Scientist, Astrobiology & Ocean Worlds group, Jet Propulsion Laboratory, California Institute of Technology
- 2015 – 2018: NASA Postdoctoral Program Fellow, Jet Propulsion Laboratory, California Institute of Technology
- 2010 – 2015: Graduate student researcher, Mullard Space Science Laboratory, University College London

Research Interests:

Charged particle interactions with the surfaces and atmospheres of solar system bodies; magnetosphere-ionosphere coupling at giant planets and their moons; radiation weathering and surface chemistry of airless bodies; habitability and biosignature preservation on ocean worlds; spacecraft remote and in-situ data analysis, computer modeling, laboratory experiments, instrument development, mission formulation, and robotic systems for extreme environments.

Professional and Community Service (selected):

- Deputy Principal Investigator, Site-agnostic Energetic Lunar Ion and Neutron Environment (SELINe) instrument, selected by NASA for launch to the surface of the Moon
- Co-Investigator (nominee), Europa Clipper Plasma Instrument for Magnetic Sounding (PIMS)
- Participating Scientist, NASA Juno mission to Jupiter
- 2019 – 2023: Member, AAS-DPS Professional Development Subcommittee
- 2018 – 2024: Deputy Director, JPL Ocean Worlds Laboratory
- Member of the Europa Lander Pre Project Science Team
- Co-Investigator, Trident mission concept (NASA Discovery finalist)
- Science team member, Cassini Plasma Spectrometer investigation
- Roadmaps to Ocean Worlds team member; co-lead of the "Up and coming satellites" target team
- Instrumentation and robotics development for the Buoyant Rover for Under-Ice Exploration (BRUIE), Exobiology Extant Life Surveyor (EELS), and earlier submersible platforms for icy-world analog environments

Selected Honors and Awards:

- JPL Team Award - Trident Discovery mission team (2020 and 2021)
- NASA Group Achievement Award – Cassini Plasma Spectrometer Team (2018)
- Sir Arthur Clarke Award – UK Cassini-Huygens team (2018)
- JPL Voyager Award (2018 and 2022)
- ESA Achievement Award – Venus Express Science Team (2015)
- NASA Postdoctoral Program Fellowship (2015)
- University College London Research Excellence Scholarship (2011)

Statement:

I am honored to be nominated to serve on the DPS Committee. The DPS community encompasses the scientific breadth that first drew me to planetary science: the chance to connect fundamental physical processes, planetary environments, exploration, and habitability across the solar system and beyond.

My path through planetary science has been interdisciplinary by design. I began in space and magnetospheric physics, studying charged-particle interactions at unmagnetized bodies, and have since worked at the interface of space physics, planetary surfaces and atmospheres, astrobiology, mission formulation, instrument development, and robotic exploration. My research on radiation weathering and surface-subsurface interactions at ocean worlds uses spacecraft data, modeling, and laboratory experiments. The interconnectedness of this work has made me deeply aware that planetary science depends on a wide ecosystem of disciplines, institutions, methods, and career paths. If elected, I would seek to represent the full range of DPS membership: observers, theorists, experimentalists, mission scientists, instrument developers, students and early-career researchers, educators, and colleagues in academia, government, industry, nonprofit research institutes, and international organizations.

We are in a time of real uncertainty for our field. Funding pressures, changing mission cadences, institutional stress, and challenges to inclusive practices do not affect all members equally. In such times, the DPS Committee has an important role to play in listening carefully, communicating clearly, and ensuring that the needs of our community are represented in DPS priorities and in coordination with AAS and partner organizations. My approach would be to listen broadly, elevate concerns from members whose voices are less often heard, and support practical actions that help sustain both our science and the people who make it possible.

Professional development and mentorship are especially important to me. I served as a member of the AAS-DPS Professional Development Subcommittee from 2019 to 2023, and I saw firsthand how valuable DPS can be as a forum for sharing practical knowledge, connecting scientists across career stages, and lowering barriers to participation. I would continue to support efforts that help students, postdocs, early career researchers, and colleagues navigating career transitions find community, opportunities, and guidance.

I would also continue to support and strengthen AAS-DPS diversity, equity, inclusion, and accessibility efforts. A scientifically vibrant DPS must also be a welcoming, accessible, and respectful DPS. DEIA is not separate from scientific excellence; it shapes who can participate, who can lead, and which ideas our community is able to pursue. I would work with the Committee and subcommittees to support safe and inclusive meetings, accessible professional development, and sustained attention to the experiences of members from historically excluded and underrepresented communities.

Planetary science is strongest when it builds bridges: between disciplines, between missions and modeling or laboratory work, between senior and early-career scientists, and between DPS and adjacent communities in astronomy, heliophysics, geoscience, astrobiology, engineering, and exploration. If elected, I would bring my experience across these bridges to help DPS represent, support, and connect its members during a challenging and consequential period for our field. Thank you for your consideration.