IVA VILOVIĆ

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As a physicist by training and astrobiologist by vocation, I am currently a doctoral scholarship holder specializing in superhabitability research. I integrate laboratory experiments with theoretical climate-chemistry modeling of exoplanetary atmospheres and aim to make meaningful contributions to addressing the search for life outside of Earth.

Education

- ***Ph.D. Scholarship Holder: Studienstiftung des deutschen Volkes*** ……..…….....***2021 – 2024***
  Doctoral Degree in Astrophysics/Astrobiology at the Technische Universität Berlin (TUB)
  - Thesis title: "*Evaluating the Potential of Life on Superhabitable Exoplanets in the Habitable Zones around K Dwarf Stars."*
- ***Technische Universität Berlin (TUB) – Berlin, Germany*** ……..……..…….....***2016 – 2019***
  Master of Science Degree in Physics
  - Master Thesis in Astrophysics at the German Aerospace Center Berlin (DLR): *"Investigating the Influence of Life upon Earth-like Atmospheres,"* using 1D atmospheric models.
- ***Technische Universität Berlin (TUB) – Berlin Germany*** ……..……..…***2013 – 2016***
  Bachelor of Science Degree in Physics
  - Bachelor Thesis in Astrophysics at the Leibniz Institute for Astrophysics in Potsdam (AIP): *"Fundamental Plane & Scaling Relations in Galaxy Cluster ABELL 1689."*
- ***Hunter College (CUNY) – New York, NY*** ……..……..***2012 – 2013***
  Major in Physics, Minor in Spanish. 3.95 GPA (Grade: A).
- ***Millennium High School – New York, NY***……..……..……***2008 – 2012***
  Advanced Regents Diploma 2012. "A" Honor Roll: 2008 – 2012. High School Salutatorian.

Employment and Experience

- ***Supervision at Technische Universität Berlin (TUB)***.....***2023 – 2024***
  - 10/2023 – 08/2024: Fanny Marie von Schauenburg, Bachelor thesis: "Statistical Studies of Exoplanet Populations."
  - 04/2023 – 04/2024: Adetoye Adeyinka, Bachelor thesis: "Testing the hypothesis of aerosol transport between Venus and Earth by physical processes."
- ***AIP – Leibniz Institute for Astrophysics***.....***11/2020 – 03/2021***
  Doctoral Researcher; Potsdam, Germany

- Worked in the Magnetohydrodynamics and Turbulence group, using numerical simulations, i.e. *NIRVANA* code by Dr. Udo Ziegler.

- ***TUB: the President's Protocol and Events & TUBS GmbH – TU Berlin ScienceMarketing*****.....2015 – 2019**
  - Support in the planning, implementation and evaluation of events (e.g. Queen´s Lecture, Climate Lecture, Honorary promotions, Long Night of the Sciences, etc.).

Selected Conferences and Talks

- **Invited talks:**
  03/24 "What's out there? Public lecture series" at the Max-Planck-Institute for Solar System Research (MPS).
  10/23 Center for Astrobiology (CAB, CSIC-INTA), Madrid, Spain. https://t.ly/ABA96

  10/22 Earth and Planets Laboratory (EPL) Seminar. Carnegie Institution for Science. Washington DC, USA.
  06/22 Exoplanets & Disks Meeting (EDM), Anton Pannekoek Institute (API) Amsterdam, Netherlands.

- **Conference and congress talks:**
  09/24, 09/23, 09/22 and 09/21 Europlanet Science Congress and European Astrobiology Network Association.
  09/24, 09/23 and 09/21 German Astrobiological Society e.V. (DAbG).

- **University lectures:**
  12/23, 10/22 and 05/22 "Life on other Planets? An Introduction to Astrobiology (Parts I and II)." Center for Astronomy and Astrophysics (ZAA) at the Technische Universität Berlin, Germany.

- **Interview**. SAGANet: Astrobiology Revealed #10. 28.09.2023.

Selected Achievements and Awards

- ***Ph.D. Scholarship Holder: Studienstiftung des deutschen Volkes (2021)***
  Germany's largest, oldest and most prestigious scholarship foundation, funding doctoral candidates on account of their exceptional academic talents and their personalities.
- ***European Space Agency (ESA)* (*2020)***
  Young Graduate Trainee (YGT) finalist for Phi-Experience at ESRIN in Frascati, Italy.

Selected Extracurricular Activities

- ***Member & Co-founder: Communication and Outreach working group*****.....2021 – present**
  Deutsche Astrobiologische Gesellschaft e.V. (DAbG)
  - Co-founded the *Communication and Outreach* working group, which aims to connect astrobiology with a variety of audiences via social media platforms.

Selected Skills

- Fluent in *Croatian*, *German*, and *English*; proficient (C1) in *Spanish*.
- Computer literate in the programming language *Python; Atmos* coupled climate-photochemical code (Fortran); *POSEIDON* forward modeling code to calculate synthetic planetary spectra; *PandExo* tool for simulating observations of transiting exoplanets with the JWST.

Research Publications

ORCID: 0000-0003-0586-9373

- **Vilović, I.**, Schulze-Makuch, D. & Heller, R. (2024). Observation of Significant Photosynthesis in Garden Cress and Cyanobacteria under Simulated Illumination from a K Dwarf Star. *International Journal of Astrobiology*. 23:e18.
  https://doi.org/10.1017/S1473550424000132
- **Vilović, I.**, Schulze-Makuch, D. & Heller, R. (2023) Variations in climate habitability parameters and their effect on Earth's biosphere during the Phanerozoic Eon. *Scientific Reports* 13, 12663.
  https://doi.org/10.1038/s41598-023-39716-z
- Gebauer S., **Vilović I.**, Grenfell J.L., Wunderlich F., Schreier F., & Rauer H. (2021). Influence of Biomass Emissions on Habitability, Biosignatures, and Detectability in Earth-like Atmospheres. *The Astrophysical Journal, 909(2), 128.*
  https://doi.org/10.3847/1538-4357/abd9cc

Submitted work

- **Vilović, I.**, Goyal J., Heller R., von Schauenburg F. M. (2024). Superhabitable Planets Around Mid-Type K Dwarf Stars Enhance Simulated JWST Observability and Surface Habitability. *Astronomical Notes*. (submitted)