

Evert Nasedkin

Curriculum Vitae

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Nationality - Canadian

Research Interests

Exoplanet Atmospheres, High-Contrast Imaging & Spectroscopy, Bayesian Inference & Statistical Methods.

Education

- Current **IMPRS-HD Doctoral Candidate**, *Max Planck Institute for Astronomy*, Heidelberg, DE.
◦ "Exploring the Diversity of Extrasolar Planets". *Sup. Laura Kreidberg and Paul Mollière.*
- 2018–2020 **Masters of Science in Physics**, *ETH Zürich*.
◦ Master's Thesis: "Sub-Stellar Atmospheres in the Mid-Infrared". *Sup. Sascha Quanz.*
◦ Semester Project: "Processing JUPITER Hydrodynamics Simulation Data for Visualisation in Paraview." *Sup. Judit Szulágyi.*
- 2013–2018 **Bachelors of Science, Honours Co-operative Physics**, *University of Waterloo*.
◦ Bachelor's Thesis: "Characterising Filamentary Structure in Planck Galactic Cold Clumps with the SCOPE dataset". *Sup. Michel Fich*
◦ Specialisation in Astrophysics
- 2010–2013 **International Baccalaureate Diploma**, *Grande Prairie Composite High School*.

Publications

- Vasist, M., Rozet, F., Absil, O., et al. submitted "*Neural posterior estimation for exoplanetary atmospheric retrieval*"
- Tsai, S. M., Lee, E., Powell, D., et al. submitted "*Direct Evidence of Photochemistry in an Exoplanet Atmosphere*" arXiv:2211.10490
- Hinkley, S., Lacour, S., Marleau, G.-D., et al. (2022) "*Direct Discovery of the Inner Exoplanet in the HD206893 System.*" A&A arXiv:2208.04867
- Mollière, P., Molyarova, T., Bitsch, B., et al. (2022) "*Interpreting the Atmospheric Composition of Exoplanets: Sensitivity to Planet Formation Assumptions*" ApJ 934 74.
- Patapis, P., Nasedkin, E., Cugno, G., et al. (2021) "*Direct Emission Spectroscopy of Exoplanets with the Medium Resolution Imaging Spectrometer on board JWST MIRI.*" A&A 658 A72.
- Lacour, S., Wang, J. J., Rodet, L., et al. (2021) "*The mass of Beta Pictoris c from Beta Pictoris b orbital motion*" A&A 654 L2.
- Cugno, G., Patapis, P., Stolker, T., et al. "*Molecular mapping of the PDS70 system. No molecular absorption signatures from the forming planet PDS70 b*" A&A 653 A12. arXiv:2106.03615
- Kammerer, J., Lacour, S., Stolker, T., et al. (2021) "*GRAVITY K-band spectroscopy of HD 206893 B. Brown dwarf or exoplanet*" A&A 652 A57. arXiv:2106.08249
- Wang, J. J., Vigan, A., Lacour, S., et al. (2021) "*Constraining the Nature of the PDS 70 Protoplanets with VLT/GRAVITY*" AJ 161 3 148. arXiv:2101.04187

Cantalloube, F., Gomez-Gonzalez, C., Absil, O., et al. (2020) "Exoplanet Imaging Data Challenge: benchmarking the various image processing methods for exoplanet detection" SPIE 11448 id 114485A. arXiv:2101.05080

Lacour, S., Wang, J. J., Nowak, M., et al. (2020) "The ExoGRAVITY project: using single mode interferometry to characterize exoplanets" SPIE 11446 id 1144600. arXiv:2101.07098

Nowak, M., Lacour, S., Lagrange, A.-M., et al. (2020) "Direct confirmation of the radial-velocity planet β Pictoris c" A&A 642 L2. arXiv:2010.04442

Mollière, P., Stolker, T., Lacour, S., et al. (2020) "Retrieving scattering clouds and disequilibrium chemistry in the atmosphere of HR 8799e" A&A 640 A131. arXiv:2010.04442

Liu, T., Li, P. S., Juvela, M. et al. (2018) "A holistic perspective on the dynamics of G035.39-00.33: the interplay between gas and magnetic fields." ApJ, 859, 2. arXiv:1803.09457

Reports & Theses

Nasedkin, E. (2020). "Sub-Stellar Atmospheres in the Mid-Infrared." (Master's Thesis). ETH Zürich, Zürich, CH.

Nasedkin, E. (2019). "Processing JUPITER hydrodynamics simulation data for visualisation in Paraview." (Semesterarbeit). ETH Zürich, Zürich, CH.

Nasedkin, E. (2018). "Characterising filamentary structure in Planck Galactic Cold Clumps with the SCOPE dataset." (Bachelor's thesis). University of Waterloo, Waterloo, ON.

Nasedkin, E. (2017) "Characterisation of a cryogenic stepper motor for ERIS." (Work Report). Zürich, CH.

Nasedkin, E. (2016). "Developing a xenon electroluminescent source for the nEXO collaboration" (Work Report). Montréal, QC.

Nasedkin, E. "Afterpulsing in Photomultiplier Tubes for DEAP-3600" (Work Report). Sudbury, ON.

Conferences and Workshops

- 10 2022 **The First Six Months of Exoplanet Atmospheres with JWST.** *Ringberg Workshop.*
 - Contributed talk: The Mid-Infrared Opportunity: Direct Imaging Spectroscopy with MIRI/MRS
- 10 2022 **Spirit of Lyot.** *Leiden, NL.*
 - Contributed talk: Four of a Kind: A Systematic Characterization of the HR8799 planets.
- 10 2022 **CHIANTI TOPICS: 5th International Focus Workshop.** *Florence, IT.*
 - Contributed talk: Four-of-a-kind: Exploring the atmospheres of the HR8799 system with GRAVITY.
- 09 2021 **European Planetary Science Conference.** *Virtual*
 - Contributed talk: Four-of-a-Kind: HR8799 - Exploring the atmospheres of the HR8799 system with VLT/GRAVITY
- 08 2021 **Atmospheres, Atmospheres! Do I look like I care about atmospheres?** *Virtual*
 - Invited Lecture: petitRADTRANS
 - Contributed talk: Four-of-a-Kind: HR8799 - Exploring the atmospheres of the HR8799 system with VLT/GRAVITY
- 08 2021 **Cloud Nine Con.** *Virtual, MPIA, Heidelberg*
- 07 2021 **Sagan Workshop: Circumstellar Disks and Young Planets.** *Virtual, Caltech, Ca.*
 - Poster: Four-of-a-Kind: HR8799
 - Assisted Young Planet Spectroscopy Hands on Session
- 03 2021 **Exoplanet atmosphere characterization: from HST and Spitzer to JWST.** *Virtual*

- 09 2020 **Planet Formation in Protoplanetary Disks.** *IMPRS-HD Summer School, Heidelberg, DE*
- 07 2020 **Exoplanets 3.** *Heidelberg, DE*
- 02 2020 **Tackling the Complexities of Substellar Objects: From Brown Dwarfs to Exoplanets.** *Lorentz Centre, Leiden, NL*
- 01 2020 **Deep Learning Meets (Astro)physics.** *ETH Zürich, Zürich, CH*
- 06 2017 **5th EIROForum School on Instrumentation.** *EIROForum, Hamburg, DE*

Outreach and Service

- 2021-Present **Student Representative,** , MPIA, Heidelberg, DE.
- 2020-Present **IMPRS-HD 16th Generation Representative,** , MPIA, Heidelberg, DE.
- 2021-Present **Member, Astronomers for Planet Earth,** .
- 2020-2023 **Exocoffee Organizer,** *APEX Department,* MPIA, Heidelberg, DE.
 - Invite and organize speakers for the weekly Exocoffee seminar

Research Experience

- 05-08 2017 **Research Assistant,** *Institute for Astronomy,* ETH Zürich, Zürich, CH.
 - Designed and performed experiments characterising cryogenic stepper motor performance for ERIS at the Very Large Telescope
 - Assembled high vacuum cryogenic test facility and analysed cooling performance
- 08-12 2016 **Research Assistant,** *nEXO Collaboration,* McGill University, Montreal, QC.
 - Simulated scintillation photon yield in xenon gas
 - Assembled an electroluminescent source used to test and calibrate photodetectors for nEXO
- 2015-2016 **Undergraduate Research Assistant,** *DEAP-3600 Dark Matter Search,* Sudbury, ON.
 - Implemented and automated analysis routine for characterising afterpulsing in photomultiplier tubes using CERN's ROOT framework
 - Calibrated muon veto PMTs and implemented data structure for time and charge information
- 2014-2016 **Aerodynamics Team Member,** *FSAE Student Design Team,* Waterloo, ON.

Teaching and Supervision

- 04-12 2022 **Supervision of Bachelor's Miniprojekt,** *MPIA,* Heidelberg, DE.
 - Supervised Neel Nagarajan in implementing PACO-ASDI algorithm.
- 10-2022 **Astro-lab Tutor,** *University of Heidelberg,* Heidelberg, DE.
- 07 2022 **Lecture,** *Hands-on Numerical Astrophysics School for Exoplanetary Sciences,* Hanau, DE.
 - Exoplanetary atmosphere models and transit spectroscopic retrieval.
- 2017-2018 **Private Tutor,** Waterloo, ON.
- 01-04 2015 **English Second Language Teacher,** *TOBB University of Economics and Technology,* Ankara, TR.

Technical Skills

- Programming** Python, Tensorflow, Fortran, C++, ROOT, LabVIEW, Mathematica, Latex, Linux
- Electronics** Digital and Analogue Circuits, Soldering, Cryogenic wiring
- Hardware** Mechanical Design, Thermal Design, Cryogenic systems