Evert Nasedkin

Curriculum Vitae

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Nationality - Canadian

Research Interests

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

Education

2020-Present **IMPRS-HD Doctoral Candidate**, *Max Planck Institute for Astronomy*, Heidelberg, DE.
- "Exploring the Diversity of Extrasolar Planets". *Sup. Laura Kreidberg and Paul Molliére.*

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

Molliére, 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 VLTI/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 114460O. 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 VLTI/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 VLTI/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