

Leonardo Krapp

Curriculum Vitae

Steward Observatory
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Appointments

- 2022–2025 **51 Pegasi b Fellowship in Planetary Astronomy**, University of Arizona, Tucson, United States of America.
- 2019–2022 **Postdoctoral Research Associate I in the Steward Observatory at the College of Science**, University of Arizona, Tucson, United States of America.

Education

- 2016–2019 **PhD - Astrophysics**, University of Copenhagen, The Niels Bohr Institute.
Thesis: Multispecies Dynamics in Weakly Ionized Dusty Protoplanetary Disks.
Advisor: Prof. Oliver Gressel
- 2010–2015 **Licenciatura en Astronomía**, Universidad Nacional de Córdoba, Córdoba.
Thesis: Non ideal MHD Effects in Protoplanetary Disks. Supervisor: Dr. Pablo Benítez-Llambay

Awards & Grants

- 2022 **51 Pegasi b Fellowship in Planetary Astronomy.**
- 2021 **3.5×10⁵ node hours for GPU computing Swiss National Supercomputing Centre**, *Co-Pi Three-dimensional study of multi-fluid dust dynamics in protoplanetary disks with embedded low-mass planets.* .
- 2018 **Honorable mention for student presentation**, School of Modern Astrophysics, Moscow, Russia.
- 2016 **PhD fellowship**, University of Copenhagen, The Niels Bohr Institute, Copenhagen, Denmark.
- 2015 **University Mention for GPA**, Universidad Nacional de Córdoba, Córdoba, Argentina.
- 2014 **Encouragement to Scientific Research**, Asociación Argentina de Astronomía, Córdoba, Argentina.
- 2012–2015 **Outstanding Student Scholarship**, Fundación Tarpuy, Córdoba, Argentina.

Teaching assistant

- 2019 **NBIA Summer School on Protoplanetary Disks and Planet Formation**, Copenhagen, Denmark.
- 2019 **Dynamical Systems and Chaos**, University of Copenhagen, Copenhagen, Denmark.

- 2018 **Optics**, University of Copenhagen, Copenhagen, Denmark.
- 2017 **Theoretical Astrophysics**, University of Copenhagen, Copenhagen, Denmark.
- 2015 **Celestial Mechanics**, Universidad Nacional de Córdoba, Córdoba, Argentina.
- 2014 **General Astrophysics**, Universidad Nacional de Córdoba, Córdoba, Argentina.

Publications

- 2022 **Substructures in protoplanetary disks imprinted by compact planetary systems**, Garrido-Deutelmoser, J; Petrovich, C; Krapp, L; Kratter, K. M; Dong, R. , ApJ submitted.
- 2021 **The 3D dust and opacity distribution of protoplanets in multi-fluid global simulations**, Krapp, L; Kratter, K. and Youdin, A. N.; , ApJ.
- 2020 **An Efficient Velocity Update for the Method of Benítez-Llambay et al. (2019)** , Krapp, L. and Benítez-Llambay, P., RNAAS.
- 2020 **Dust settling instability in protoplanetary discs** , Krapp, L; Youdin, A. N.; Kratter, K. M.; Benítez-Llambay, P., MNRS.
- 2019 **Predicting the observational signature of migrating Neptune-sized planets in low-viscosity disks** , Weber, P; Pérez, S; Benítez-Llambay, P; Gressel, O; Casassus, S; Krapp, L, ApJ.
- 2019 **Hydrodynamical interaction of stellar and planetary winds: effects of charge exchange and radiation pressure on the observed Ly- α absorption**, Esquivel, A.; Schneiter, M.; Villarreal D'Angelo, C.; Sgró, M. A.; Krapp, L., MNRS.
- 2019 **Streaming Instability for a particle-size distribution**, Krapp, L; Benítez-Llambay, P; Gressel, O; Pessah, M. E., ApJL.
- 2019 **Asymptotically stable numerical scheme for multispecies momentum transfer: Gas and Multifluid-dust test suite and implementation in FARGO3D**, Benítez-Llambay, P.; Krapp, L.; Pessah, M. E., ApJS.
- 2018 **Dust segregation in Hall-dominated turbulent protoplanetary disks**, Krapp, L.; Gressel, O.; Benítez-Llambay, P.; Downes, T. P.; Mohandas, G.; Pessah, M. E., ApJ.
- 2018 **Characterizing the Variable Dust Permeability of Planet-induced Gaps**, Weber , Philipp; Benítez-Llambay, Pablo; Gressel, Oliver; Krapp, Leonardo; Pessah, Martin E., ApJ.
- 2016 **Numerical implementation of the Hall effect, Ohmic diffusion and ambipolar diffusion in a MHD code**, Krapp L., Benítez-Llambay P., C., BAAA.

Seminars and Invited Talks

- 2021 **Early Career Scientist Talks**, *Thus dust and opacity distribution of protoplanets*, Oc 20, Steward Observatory, University of Arizona, Tucson, United States of America.

- 2021 **Modeling and Computation Seminar**, *The Power of Nonnegative Matrices in Multi-Species Hydrodynamics*, School of Mathematical Sciences, University of Arizona, Feb 11, Tucson, United States of America.
- 2020 **Planetesimal formation meeting**, *Streaming Instability for Particle-Size Distributions*, Nov 18, Virtual Meeting.
- 2020 **Early Career Scientist Talks**, *Multi-Species Simulations of Protoplanetary Disks*, May 21, Steward Observatory, University of Arizona, Tucson, United States of America.
- 2019 **Origins Seminars**, *Simulations of Multi-Species Protoplanetary Disks*, University of Arizona, Oct 15, Tucson, United States of America.
- 2019 **Steward Observatory, University of Arizona**, *From the Hall effect to the Streaming Instability*, May 24, Tucson, United States of America.
- 2018 **Universidad de Valparaiso**, *Multifluid FARGO3D and its applications on dust dynamics*, December 20, Valparaiso, Chile.
- 2018 **Universidad de Chile**, *Dust segregation in Hall-dominated turbulent protoplanetary disks*, December 19, Santiago, Chile.
- 2018 **Universität Heidelberg**, *Multifluid FARGO3D and its applications on dust dynamics*, October 31, Heidelberg, Germany.
- 2018 **The Max Planck Institute for Astronomy**, *Dust segregation in Hall-dominated turbulent protoplanetary disks*, October 31, Heidelberg, Germany.
- 2016 **The Niels Bohr Institute**, *Non-ideal MHD effects on FARGO3D plus dust MULTIFLUID implementation*, May 8, Copenhagen, Denmark.
- 2015 **Thesis dissertation**, *Numerical implementation of the Hall effect, Ohmic diffusion and ambipolar diffusion in a MHD code*, Observatorio astronómico de Córdoba, March 20, Córdoba, Argentina.
- 2015 **Thesis part 2**, *Numerical implementation of the Hall effect, Ohmic diffusion and ambipolar diffusion in a MHD code - Part 2*, Observatorio astronómico de Córdoba, March 17, Córdoba, Argentina.
- 2014 **Thesis part 1**, *Numerical implementation of the Hall effect, Ohmic diffusion and ambipolar diffusion in a MHD code - Part 1*, Observatorio astronómico de Córdoba, June 20, Córdoba, Argentina.

Talks at scientific meetings

- 2021 **Los Alamos - Arizona Days 2021**, *Multi-Fluid Simulations of Protoplanetary Disks*, May 18, Virtual Meeting.
- 2020 **The Building Blocks of Planets 2020**, *Dust Settling Instability in Protoplanetary Disks*, Apr 15, Virtual Meeting.
- 2019 **TCAN 1st meeting**, *Towards Multi-Species Simulations of Protoplanetary Disks*, Oct 15, Steward Observatory, University of Arizona, Tucson, United States of America.
- 2019 **Great Barriers in Planet Formation**, *Linear and non-linear multi-species streaming instability*, Jun 22, Palm Cove, Queensland, Australia.

- 2019 **Theoretical and Computational Challenges in Planet Formation Workshop**, *Multispecies simulations of protoplanetary disks*, May 22, Flatiron Institute, New York, United States of America.
- 2019 **Friends of Friends meeting**, *Multispecies simulations of protoplanetary disks*, IATE, April 3, Córdoba, Argentina.
- 2019 **Fréjus Meeting**, *Linear and non-linear Multi-Species Streaming Instability*, March 18, Fréjus, France.
- 2018 **Copenhagen-Lund meeting**, *Multifluid FARGO3D and its applications on dust dynamics*, November 6, Lund, Sweden.
- 2018 **TIARA Summer School on Origins of the Solar System**, *Dust segregation in Hall-dominated turbulent protoplanetary disks*, Academia SINICA, July 19, Taipei, Taiwan.
- 2018 **14th Summer School on Modern Astrophysics**, *Dust segregation in Hall-dominated turbulent protoplanetary disks*, Moscow Institute of Physics and Technology, July 7, Moscow, Russia.
- 2018 **Friends of Friends meeting**, *Dust segregation in Hall-dominated turbulent protoplanetary disks*, IATE, April 6, Córdoba, Argentina.
- 2017 **Visit to Córdoba**, *Hall-MRI on protoplanetary disk and dust trapping*, IATE, July 10, Córdoba, Argentina.
- 2016 **Copenhagen-Lund meeting**, *Non-ideal MHD effects on protoplanetary disk*, Lund University, November 8, Lund, Sweden.
- 2016 **Friends of Friends meeting**, *Radiation pressure and charge exchange model for HD209558b*, IATE, March 29 to April 1, Córdoba, Argentina.
- 2015 **Friends of Friends meeting**, *Numerical implementation of the Hall effect, Ohmic diffusion and ambipolar diffusion in a MHD code*, IATE, April 4-18, Córdoba, Argentina.

Outreach

- 2018 **Public seminar on astronomy at the Tycho Brahe Planetarium**, *Tycho Brahe Planetarium*, Copenhagen, Denmark.
- 2016-2017 **Thematic journal club organizer**, *The Niels Bohr Institute and Centre for Star and Planet Formation*, Copenhagen, Denmark.
- 2014 **Reconstruction of a lab spectrograph for practical purposes**, Observatorio astronómico de Córdoba, Córdoba, Argentina.
- 2008 **Congressman organizer for amateur astronomers and astronomy professionals**, Sunchales, Santa Fe, Argentina.