

# CV of Prof. Dr. Judit Szulágyi [Oct 2021]

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## Research Interest

Planet Formation, Satellite Formation, Circumplanetary Disks, Circumstellar Disks, Exoplanets, Astrobiology, Black Hole Accretion Disks, Gravitational Waves

## Education

- PhD in Astrophysics, University of Nice Sophia Antipolis, Nice, France (Sept 2012 - Dec 2015)
  - ◊ Capital Fund Management's PhD Fellowship of Excellence
  - ◊ Thesis defense date: November 19, 2015
- M.S. in Astronomy (with distinction), Eötvös Loránd University, Budapest, Hungary (Sept 2010 - July 2012)
  - ◊ Visiting Graduate Student at Johns Hopkins University (Baltimore, MD, USA): attended "Extrasolar Planets" course by Prof. Holland Ford (2009-2010 spring term)
- B.S. Physics with Astronomy minor, Eötvös Loránd University, Budapest, Hungary (Sept 2006 - July 2009)

## Positions & Research Experience

ETH ZÜRICH, ZÜRICH, SWITZERLAND

- Professor of Computational Astrophysics; group leading assistant professor (Jan 2021 - )
  - ◊ PI of an ERC Starting Grant "Planet- and Moon Factory" (Jan 2021 - Dec 2025)
  - ◊ Project leader & associate member of the National Centre of Competence in Research PlanetS research programme, <http://nccr-planets.ch/>
  - ◊ Associated Faculty at Computational Science Zurich, <http://www.zhcs.ch/> (Jan 2021 -)
  - ◊ Associated Faculty at ETH AI Center, <https://ai.ethz.ch/> (Oct 2021 -)
  - ◊ Member of Guaranteed Time Observations & Science Team of the Spectro-Polarimetric High-contrast Exoplanet REsearch (SPHERE) instrument located on the Very Large Telescope in Chile (June 2016 - )
  - ◊ Member of the European Astrobiology Institute Project Team on Protoplanetary Disks; <https://eai-ppd.dreamhosters.com/> (2020 Nov - )

## UNIVERSITY OF ZÜRICH, ZÜRICH, SWITZERLAND

- PI of "Catching Planets in Formation: The Role of Circumplanetary Disks", Swiss National Foundation Ambizione grant (Jan 2018 - Dec 2020)
- Senior Research Associate ("Oberassistentin"), junior group leader
- Associate member of the National Centre of Competence in Research PlanetS research programme, <http://nccr-planets.ch/>

## ETH ZÜRICH, ZÜRICH, SWITZERLAND

- ETH Postdoctoral Fellow studying circumplanetary disks and planet formation (Jan 2016 - Dec 2017)

## OBSERVATOIRE DE LA CÔTE D'AZUR, NICE, FRANCE

- PhD student (Sept 2012 - Dec 2015)
  - ◊ Thesis work: *Gas accretion onto giant planets & circumplanetary disks – giant planet formation with hydrodynamic simulations*
  - ◊ Other projects: *Migration of planetary embryos, instabilities and planet formation in stellar irradiated disks, dust-gas hydrodynamics*
- Collaboration in the Antarctica Search for Transiting Extrasolar Planets / ASTEP/ (2011 - 2015) Project: *Trend filtering & detection of exoplanets*

## SPACE TELESCOPE SCIENCE INSTITUTE, BALTIMORE, MD, USA

- Research Assistant on NASA contract (Sep 2009 - June 2010)  
Project: *Gas spectroscopy in transitional disks*

## KONKOLY OBSERVATORY OF HUNGARIAN ACADEMY OF SCIENCES, BUDAPEST, HUNGARY

- Research Assistant (July 2010 - Aug 2012)  
Projects: *Gas component of circumstellar disks, debris disks, moving groups*
- Undergraduate Research Assistant (Jan 2009 - Aug 2009)  
Project: *Interferometry of circumstellar disks around young, tight binaries*
- Undergraduate Research Assistant (Oct 2006 - Dec 2008)  
Project: *Application of the Trend Filtering Algorithm on the MACHO database*

## Fellowships &amp; Grants

- Research Grant from MERAC Foundation (June 2021 onward) - grant for postdoc salaries - 100'000 EUR
- *ERC Starting grant* by the European Research Council (Jan 2021 - Dec 2025) - grant for salaries, publication costs etc. 1'261'336 EUR
  - ◊ top-up grant by ETH Zurich ~ 310'000 CHF
- *Ambizione Grant* by the Swiss National Science Foundation (Jan 2018 - Dec 2020) - grant for salaries, super-computer time, travel, etc. of 598'904 CHF
- *ETH Postdoctoral Fellowship* by ETH Zürich (Jan 2016 - Dec 2017) - fellowship + travel grant of 225'700 CHF

- *PhD Fellowship of Excellence* by Capital Fund Management (Sept 2012 - Sept 2015)– Bourse JP Aguilar, PhD fellowship + travel grant of 85'500 EUR
- Financial support by the COST Action "Origin and Evolution of Life on Earth and in the Universe" to attend the "Summer course on Exoplanets", La Palma, Canary Islands, Spain (2014) – 800 EUR
- Financial support by the European Space Agency for attending the conference "Protostars and Planets VI" in Heidelberg, Germany (2013) – 350 EUR
- Financial support from NASA Jet Propulsion Laboratory to attend the "Exploring Strange New Worlds" conference in Flagstaff, AZ, US (2011) – 3260 USD
- Research Scholarship by Eötvös University (2008-2009 spring term, 2010-2011 fall & spring terms) – 90000 HUF

## Awards & Prizes

- MERAC Prize for *Best Early Career Researcher 2021 in New Technology (Computational)* by the European Astronomical Society (2021)
- Forbes list "*30 under 30 in Science*" (2017)
- *Outstanding Student of the Faculty of Sciences* award by the Eötvös University (2012)
- *Pro Scientia Golden Medal* in Physics-Mathematics-Earth Sciences by the Hungarian Academy of Sciences (2011)
- First prize on *Hungarian National Contest of Young Scientists* (2009)
- First prize on "*Catch a Star! 2005-2006*" international high-school student contest by European Southern Observatory → Prize: visit the Very Large Telescope in Chile – August, 2006

## Selected Press Coverage

- "How planets like Jupiter form" – Phys.org
- "Preventing stars from eating their young" – Nature News
- "To trace a gas giant's birth, take its temperature" – Cosmos Magazine
- "Mystery of Gas Giant Planets' Death Spiral May Be Solved" – Space.com
- "Secret Recipe Book for Cooking Jupiters Revealed" – Discovery News

## Supervising

Summary: 1 postdoc, 2 PhD, 7 MS theses, 8 BSc theses/Semester Projects

- Postdocs:
  - ◊ Ameya Prabhu (2021 Sep -)
- PhD students:
  - ◊ Marco Cilibrasi (co-supervised with Prof. Lucio Mayer at Univ. Zürich; 2018 Sep -)
  - ◊ Fabian Binkert (co-supervised with Prof. Til Birnstiel at Univ. of Munich; 2020 Feb -)
- MS thesis students:

- ◇ Pablo Rutschmann (2021 Sep -)
- ◇ Quentin Cretenet (2021 Sep -)
- ◇ Xueqing Chen (2021 March - Sep)
- ◇ Cassandra Inderbitzi (2021 Jan -)
- ◇ Can Akin (2021 Jan - July) → PhD student at Univ. of Munich
- ◇ Fabian Binkert (ETH Zürich; 2018 Sep – 2020 Jan) → currently PhD student at Univ. of Munich
- ◇ Marco Cilibrasi (Univ. Zürich; 2017 Jan - 2018 Aug) → currently PhD student at Univ. of Zürich + ETH Zürich
- Semester Project students (both on MS and BSc levels)
  - ◇ Benjamin Arner (2021 Oct -)
  - ◇ Adriana De-Sassi (2021 Sep -)
  - ◇ Thomas Renggli (2021 Sep -)
  - ◇ Brülisauer Manuel (2021 March - June)
  - ◇ Siri Dobler for semester project (ETH Zürich; 2018 Sep – 2018 Dec)
  - ◇ Evert Nasedkin for semester project (ETH Zürich; 2018 Oct – 2019 Jan) → currently PhD student at Univ. of Heidelberg
  - ◇ Pablo Rutschmann (2021 March - June)
  - ◇ Cassandra Inderbitzi (Univ. Zürich; 2017 Oct - 2018 Sep) → currently MS student at Univ. of Zürich

## Teaching

- Main lecturer of "Planet Formation" ETH Zürich, fall terms
- Main lecturer of "Advanced Computational Methods in Astrophysics" ETH Zürich, spring terms
- Teaching Assistant "Astrophysics III: Galactic Astrophysics" by Hans-Martin Schmid at ETH Zürich (2016-17 spring term)
- Guest lecturer on "Computational Astrophysics" course by Lucio Mayer at Univ. Zürich (2018-19 fall term)
  - ◇ in addition, developed the course material on radiative transfer (lecture + exercise)
- Guest lecturer on "Exoplanets" course by Sascha Quanz at ETH Zürich (2016-17 spring term, 2017-18 spring term)
  - ◇ in addition, developed the course material on planet formation (2 lectures)

## Activity & Service

- Reviewer for NASA's Exoplanets Research Program (2021 July)
- Outreach through NCCR PlanetS (planet formation popularizing youtube videos, articles etc.)
- Chair (main organizer) of the Circumplanetary Disk II. conference in ETH Zürich (2021 March)
- Core Team Member of the Cultural Development Committee of rETHink of ETH Zürich (2021 Jan -)
- Reviewer for Nature Astronomy, Monthly Notices of the Royal Astronomical Society, Astronomy & Astrophysics

- Scientific Organization Committee member for the Symposium "Protoplanetary disks: the birth places of planets", EWASS, Lyon, France, 2019 June
- Exhibition about my research at "Expedition Solar System" in ETHZ, 2018 March - 2019 June  
<https://focusterra.ethz.ch/en/special-exhibitions/archive/expedition-solar-system.html>
- Elected member of the hiring committee of a professor at ETH Zürich in star and planet formation (Aug 2016 - )
- Panel speaker at "She Started It" event of women in STEM fields at ETH Zürich (May 30, 2017)
- Scientific Organization Committee member for the conference "Carving through the Codes: Challenges in Computational Astrophysics", Feb 2017, Davos, Switzerland
- Elected student delegate of the Scientific Council at University of Nice (Apr 2014 - Apr 2015)
- Co-founder and co-organizer of *Astrobiology Journal Club* at Johns Hopkins University (Sept 2009 - Jun 2010)
- Journalism: over 35 outreach articles about astronomy & space research for various astronomical websites (e.g. <http://www.csillagaszat.hu/>; <http://www.urvilag.hu/>)

## Computer Skills

- Programming languages: C, FORTRAN, Tcl, IDL, python, Shell scripts
- Hydrodynamic codes used or developed (in case specified):
  - ◊ JUPITER: main developer since 2015
  - ◊ FARGO3D
  - ◊ FARGOCA

## Language Skills

- English - fluent
- French - intermediate
- German - intermediate
- Hungarian - native

## Selected Observational Proposals

- PI on "The First Detection of the Circumplanetary Disk with ALMA" – Atacama Large Millimeter Array Cycle 5
- Co-I on "First ALMA observations of young circumplanetary disks" – Atacama Large Millimeter Array Cycle 3 (PI: J. Pineda)
- Co-I on "A census of debris disks in nearby young moving groups with Herschel" – Herschel Space Observatory OT2 (PI: A. Moór)
- Co-I on "Spatially resolved far-infrared imaging of bright debris disks: studying the disk structure and the stirring mechanism." – Herschel Space Observatory OT1 (PI: P. Ábrahám)

## Professional Development and Summer/Winter Schools

- "Committed and Skilled, Teaching at ETH" – Zürich, Switzerland (fall term 2021)
- "Racism, implicit bias and wellbeing - Inclusive Teams, Inclusive Teaching" – Zürich, Switzerland (22, 25 March, 2021)
- "Win-win negotiation skills for researchers" – Zürich, Switzerland, (21-22 April, 2020)
- "Lateral leadership skills" – Zürich, Switzerland (9, 16 June 2020)
- "Science Communication" – Zürich, Switzerland (Sep 4, 2017)
- "How to write a convincing CV" – Bern, Switzerland (Oct 2, 2016)
- Summer course on Exoplanets, La Palma, Canary Islands (Sept 24 - Oct 2, 2014)
- Chronology of solar system formation V: the first solids and the first planetesimals, Les Houches, France (Feb 10-15, 2013)
- IMPRS Summer School 2011: Characterizing Exoplanets from Formation to Atmospheres, Heidelberg, Germany (August 1-5, 2011)

## Professional Visits

- Collaborating at Center for Computational Astrophysics, Flatiron Institute, New York, NY, USA (Oct 20-25, 2019)
- Collaborating at NASA's Ames Research Center, Moffet Field, CA USA, (July 10-12, 2017)
- Participant of the "Exoplanet Summer Program", Other Worlds Laboratory (OWL) at the University of California, CA, USA (June 26 - July 7, 2017)
- Collaborating at Earth-Life Science Institute, Tokyo, Japan (March 22-31, 2017)
- Collaborating at the Anton Pannekoek Institute of Astronomy, University of Amsterdam, Amsterdam, The Netherlands (Jan 29-31, 2017)
- Collaborating at Institute of Astronomy, University of Cambridge, Cambridge, UK (Apr 25-28, 2016)
- Collaborating at Department of Astronomy, University of Chile, Santiago, Chile (Nov 3-14, 2014)
- Collaborating at Instituto de Ciencias Físicas, UNAM, Mexico (May 25 - June 8, 2014)
- Collaborating at Instituto de Ciencias Físicas, UNAM, Mexico (September 1-21, 2013)
- Collaborating at Observatoire de la Côte d'Azur, Nice, France (March 3 - April 17, 2011)
- Reserach Assistant at Space Telescope Science Institute, Baltimore, MD, USA (Sep 2009 - June 2010)
- Herschel/PACS daily operation at Max Planck Institute for Extraterrestrial Physics, Germany (August 19-23, 2009)
- Collaborating at Leiden Observatory, Netherlands (April 15-22, 2009)

## Conferences, Seminars & Contributions

Summary: invited seminar talks: 39; invited conference talks: 17; contributed talks: 12

1. "Spinning Fluids 2021: Laboratory Fluid Dynamics for Disks and Planets", Ringberg Castle, Germany, Sep 2021 – invited talk (remote - COVID)
2. European Astronomical Society Annual Meeting, Jun 2021 – invited plenary talk (remote - COVID)
3. Max Planck Institute for Astronomy, Heidelberg, Germany, Jun 2021 – seminar talk (remote - COVID)
4. Aryabhata Research Institute of Observational Sciences (ARIES), Nainital, India, Jun 2021 – seminar talk (remote - COVID)
5. "European Astrobiology Institute Project Team on Protoplanetary Disks", Stockholm, Sweden, Apr 2021 – invited talk (remote - COVID)
6. "Circumplanetary Disks and Satellite Formation II" conference, ETH Zurich, Switzerland, Mar 2021, – contributed review talk (remote - COVID)
7. University of Chicago, Chicago, IL, USA, Feb 2021 – seminar talk (remote - COVID)
8. University of Bern, Bern, Switzerland, Feb 2021 – seminar talk (remote - COVID)
9. PlanetS General Assembly 2021, Bern, Switzerland, Jan 2021 – invited talk (remote - COVID)
10. University of Leicester, Leicester, UK, Jan 2021 – seminar talk (remote - COVID)
11. Exomoon Discussion, New York, NY, USA, Nov 2020 – contributed talk (remote - COVID)
12. Columbia University, New York, NY, USA, Nov 2020 – seminar talk (remote - COVID)
13. Workshop on "Architecture of planetary systems", Bern, Switzerland, Nov 2020 – invited talk (remote - COVID)
14. Florida Tech, Melbourne, FL, USA, Oct 2020 – seminar talk (remote - COVID)
15. Stockholm University, Stockholm, Sweden, Sep 2020 – seminar talk
16. New Mexico State University, Las Cruces, NM, USA, July 2020 – seminar talk (remote - COVID)
17. ETH Zurich, Zurich, Switzerland, May 2020 – seminar talk (remote - COVID)
18. Clemson University, Clemson, SC, USA, April 2020 – seminar talk (remote - COVID)
19. Caltech, Pasadena, CA, USA, Feb 2020 – seminar talk
20. NASA Jet Propulsion Laboratory, Pasadena, CA, USA, Feb 2020 – seminar talk
21. University of California Los Angeles, Los Angeles, CA, USA, Feb 2020 – seminar talk
22. NASA Goddard, Greenbelt, MD, USA, Feb 2020 – seminar talk
23. American Astronomical Society Meeting, Honolulu, HI, USA, Jan 2020 – contributed talk
24. European Planetary Science Congress-Division of Planetary Science (American Astronomical Society) Joint Meeting 2019, Geneva, Switzerland, Sep 2019 – invited talk
25. "Extreme Solar Systems IV" conference, Reykjavik, Iceland, Aug 2019 – poster
26. "Great Barriers in Planet Formation" conference, Palm Cove, Australia, July 2019 – contributed talk
27. "Theoretical and Computational Challenges in Planet Formation" conference, Flatiron Institute, New York, NY, USA, May 2019 – invited talk

28. "New Horizons in Planetary Systems" conference, Victoria, Canada, May 2019 – contributed talk
29. Seminar at Kapteyn Astromonomical Institute, Groningen, The Netherlands, May 2019 – seminar talk
30. Seminar at European Southern Observatory, Munich/Garching, Germany, April 2019 – seminar talk
31. Seminar at the University of Arizona, Tucson, AZ, USA, April 2019 – seminar talk
32. Seminar at the Princeton University, Princeton, NJ, USA, March 2019 – seminar talk
33. "23rd International Microlensing Conference", New York, NY, USA, Jan 2019 – invited talk
34. "PLATO Theory Meeting", Cambridge, UK, Dec 2018 – contributed talk
35. Seminar at the Arcetri Observatory, Florence, Italy, Nov 2018 – seminar talk
36. "Exoplanet Demographics: Observations Confront Planet Formation Theory" PlanetS workshop, Bern, Switzerland, July 2018 – contributed talk
37. "Gravitational Instability: unsolved problems in forming planets, brown dwarfs and stellar companions" workshop, Leicester, UK, June 2018 – invited talk
38. Seminar at the Geneva Observatory, Geneva, Switzerland, June 2018 – seminar talk
39. Seminar at Dept. of Earth Sciences, ETHZ, Zurich, Switzerland, April 2018 – seminar talk
40. "Circumplanetary Disks" conference, Nagoya, Japan, March 2018 – invited talk
41. "Low-Mass Early Planetary Atmospheres" workshop, Tübingen, Germany, Feb 2018 – invited talk
42. PlanetS General Assembly 2018, Grindelwald, Switzerland, Jan 2018 – invited talk
43. "Exoplanets and Planet Formation" conference, Shanghai, China, Dec 2017 – invited talk
44. Seminar at Institut de Planétologie et d'Astrophysique de Grenoble, Grenoble, France, Nov 2017 – seminar talk
45. Seminar at Department of Applied Mathematics and Theoretical Physics (DAMTP), University of Cambridge, Cambridge, UK, Nov 2017 – seminar talk
46. "Planet Formation and Evolution 2017" conference, Jena, Germany, Sep 2017 – contributed talk
47. Seminar at Institut für Astronomie & Astrophysik/Computational Physics, Universität Tübingen, Germany, July 2017 – seminar talk
48. Seminar at NASA's Ames Research Center, Moffet Field, CA USA, July 2017 – seminar talk
49. "Exoplanet Summer Program", Other Worlds Laboratory (OWL) at the University of California, CA, USA, June 2017 – contributed talk
50. Seminar at University of Zurich, Zurich, Switzerland, Apr 2017 – seminar talk
51. Seminar at the Earth-Life Science Institute, Tokyo, Japan, March 2017 – seminar talk
52. Seminar at the Department of Physics, University of Milano, Milan, Italy, March 2017 – seminar talk
53. Seminar at the Anton Pannekoek Institute of Astronomy, University of Amsterdam, Amsterdam, The Netherlands, Jan 2017 – seminar talk
54. PlanetS General Assembly 2017, Grindelwald, Switzerland, Jan 2017 – contributed talk
55. Seminar at Institut de Planétologie et d'Astrophysique de Grenoble, Grenoble, France, Dec 2016 – seminar talk

56. Seminar at Institute for Research in Astrophysics and Planetology, University of Toulouse, Toulouse, France, Nov 2016 – seminar talk
57. "Disk to Planets" workshop Budapest, Hungary, Oct 2016 – invited talk
58. Seminar of the Lagrange Laboratory, Observatoire de la Côte d'Azur, Nice, France, Sept 2016 – seminar talk
59. "New Directions in Planet Formation" workshop, Leiden, Netherlands, July 2016 – invited talk
60. "Exoplanets I" conference, Davos, Switzerland, July 2016 – poster
61. PlanetS Meeting, Geneva Observatory, Versoix, Switzerland, May 2016 – invited talk
62. "Resolving Planet Formation in the Era of ALMA and Extreme AO", Santiago, Chile, May 2016 – contributed talk
63. Seminar at University of Bern, Center for Habitability, Bern, Switzerland, May 2016 – seminar talk
64. Seminar at the Astronomy Unit, Queen Mary University, London, UK, April 2016 – seminar talk
65. Seminar at Institute of Astronomy, Cambridge University, Cambridge, UK, April 2016 – seminar talk
66. Seminar at University of Zürich, Center for Computational Astrophysics, Zürich, Switzerland, Feb 2016 – seminar talk
67. PlanetS General Assembly 2016, Grindelwald, Switzerland, Jan 2016 – contributed talk
68. "Extreme Solar Systems III" conference, Hawaii, HI, USA, Dec 2015 – poster
69. Seminar at Institute for Astronomy, ETH Zürich, Zürich, Switzerland, Jan 2015 – seminar talk
70. "MAD Workshop: protoplanetary disks and the planets they form", Santiago, Chile, Nov 2014 – invited talk
71. Seminar at Observatoire de Paris, Meudon, France, June 2014 – seminar talk
72. "Planets across the HR Diagram" conference, Cambridge, UK, July 2014 – poster
73. Summer course on Exoplanets, La Palma, Canary Islands, Spain, Sept 2014 – short talk & poster
74. "Protostars and Planets VI" conference, Heidelberg, Germany, July 2013 – poster
75. European Planetary Science Congress 2013, London, UK, Sep 2013 – poster
76. Exploring Strange New Worlds, Flagstaff, AZ, USA, May 2011 – poster
77. American Astronomical Society meeting, Washington DC, US, Jan 2010 – poster

## Memberships

- American Astronomical Society
- European Astronomical Society
- Europlanet Society
- Swiss Society for Astrophysics and Astronomy