

Curriculum Vitae, Célia Desgrange

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Born on August 27th, 1997 in Strasbourg (France)
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Education

- 2021-pres. **Philosophiae Doctor (Ph.D.) in Astronomy and Astrophysics**, see the first experience.
Institut de Planétologie et d'Astrophysique de Grenoble (IPAG), Grenoble, France
Max-Planck Institute for Astronomy (MPIA), Heidelberg, Germany
- 2017-2021 **Diplom of the École Normale Supérieure de Lyon**
École Normale Supérieure (ENS) de Lyon, Lyon, France
- 2019-2020 **Master of Astronomy, Astrophysics and Spatial Engineering**, with honors
Observatory of Paris within the University of Paris, France
- 2018-2020 **Master of Physics**, with honors
ENS de Lyon within the University of Lyon, France
- 2017-2018 **Bachelor of Physics**, with honors
ENS de Lyon within the University of Lyon, France
- 2015-2017 **Preparatory Class** in Mathematics, Physics and Chemistry, with honors
Kléber High-School, Strasbourg, France
- 2014-2015 **Scientific “Baccalauréat”**, with honors
Jean Monnet High-School, Strasbourg, France

Experience

- 2021-pres. **Ph.D.** entitled “Architecture of planetary systems by direct imaging of disks and exoplanets with the SPHERE instrument at the VLT, and in the context of the SPHERE+ upgrade.”
Co-supervision between IPAG, Grenoble, France and MPIA, Heidelberg, Germany
3 years, supervised by GAËL CHAUVIN, JULIEN MILLI and THOMAS HENNING
- 2021 **Research project** on Planetary system architectures with low-mass inner planets
IPAG, Grenoble, France
5 months, supervised by JULIEN MILLI and GAËL CHAUVIN
- 2020-2021 **Research project** on Data processing of protoplanetary disks to look for the exoplanets creating the observed substructures in direct imaging
MPIA, Heidelberg, Germany
5 months, supervised by FAUSTINE CANTALLOUBE and THOMAS HENNING
- 2020 **Master’s thesis** on Experimental and theoretical limitations from polarisation shifts in High-Contrast Imaging
Laboratoire d’Études Spatiales et d’Instrumentation en Astrophysique (LESIA), Observatory of Paris, Meudon, France
4 months, supervised by PIERRE BAUDOZ and RAPHAËL GALICHER

- 2020/03 **Observational week** (selection of the targets to observe, manipulation of the 1m52, 1m20, and 80cm telescopes and their domes, data processing and analysis)
Observatory of Haute-Provence, France
 1 week, supervised by NOËL ROBICHON and HERVÉ DOLE
- 2019 **Master research project** on the In-depth characterisation of the young planetary system HD 95086 with ten VLT/SPHERE observations
Universidad de Chile, Santiago, Chile
 4 months, supervised by GAËL CHAUVIN and PATRICIO ROJO
- 2018 **Bachelor's thesis** on Testing the Averaged Inhomogeneous Cosmology model by using maximum likelihood estimation to fit light-curves of Type Ia supernovae
Centre de Recherche Astrophysique de Lyon (CRAL), Lyon, France
 2 months, supervised by THOMAS BUCHERT and ASTA HEINESSEN

Selected conferences and workshops, & Talks

- 2023/08 **JWST Cycle 3 Debris disk proposal** workshop, *Heidelberg, Germany*
 ◦ Contributed talk: The intriguing architecture of the system HD 120326
- 2023/06 **Semaine de l'astrophysique française (SF2A)** conference, *Strasbourg, France*
 ◦ Contributed talk: The intriguing double-belt system HD 120326
- 2023/06 **Santa Cruz, Caltech, and JPL group meeting talks**, *California, USA*
 ◦ Contributed talk: Architecture of planetary systems with low-mass inner planets
- 2023/01 **Exosystèmes III** workshop, *Marseille, France*
 ◦ Contributed talks: In-depth study on the young multi-belt system HD95086 hosting (*at least*) one giant planet
- 2022/07 **In the Spirit of Lyot** conference, *Leiden, Netherlands*
 ◦ Poster: Architecture of planetary systems with low-mass inner planets
- 2022/06 **Semaine de l'astrophysique française (SF2A)** conference, *Besançon, France*
 ◦ Contributed talk: the young exoplanetary system HD 95086
- 2021/11 **Exosystèmes II** workshop, *Toulouse, France*
 ◦ Contributed talk: Architecture of planetary systems with low-mass inner planets

Teaching

- 2022 **Teacher in Python** in 3rd-year of Bachelor (16h, Physics sector)
Université Grenoble Alpes, Grenoble, France
- 2021 **Teacher in Mathematics** in 1st-year of Bachelor (32h, Biology sector)
Université Grenoble Alpes, Grenoble, France
- 2019-2020 **Examiner in Mathematics and Physics** in Preparatory Class (Physics sector)
Buffon High-School, Paris, France
- 2017-2018 **Volunteer teacher of French as a foreign language** for migrants
Lyon, France

Scientific community work

- 2023/10 **Co-organiser (SOC) of the annual MPIA-PSF retreat**
MPIA, Heidelberg, Germany
- 2023/08 **Co-organiser (SOC) of the workshop JWST Cycle 3 Debris disk proposal**
MPIA, Heidelberg, Germany
- 2023/05 **“From childhood dream to exoplanet detection: doing research in astrophysics”** outreach conference given to students, their parents and teachers.
Jean Sturm High-school, Strasbourg, France
- 2022/11 **“What is a PhD? What deals my PhD with? All started with my research experience in Chile, a country of flourishing observatories”** outreach conference given to student members of a club in astronomy.
Jean Sturm High-school, Strasbourg, France
- 2022/08 **“Exploration of planetary systems by using direct imaging”** outreach conference given to amateur astronomers, mostly from SAFGA.
Bellefosse in Alsace, France
- 2021/08 **“Investigation of planetary systems by using direct imaging”** outreach conference given to amateur astronomers, mostly from SAFGA.
Chalet de la Perheux, in Alsace, France
- 2015-2019 **Volunteer to the national event French stellar nights** (“Nuits des étoiles”) in the context of the organisation SAFGA (Société Astronomique de France – Groupe Alsace) → Public outreach to the night sky by using my own 200 mm-telescope.
Strasbourg, France

Organisations

- since 2014 **Member of the astronomical organisation SAFGA.** Board member between January 2020 and January 2023. *Strasbourg, France.*

Awards

- 2019 Winner of the International Physicists’ Tournament with the team of the University of Lyon at the French scale; Second at the international scale.

Languages

French (native)
English (fluent, CAE certification C1)
Spanish, German (intermediate)
Italian, Russian (beginner)

Computer skills

Python (advanced)

Matlab (intermediate)
IDL, Fortran, C (beginner)

Publications

The list of my publications can be found here: <https://shorturl.at/eAGRS>

First author: 2 publications (+1 recommended for publication)

- Desgrange, C., Milli, J., Chauvin, G. et al., recommended for publication to A&A after moderate revision.
- Desgrange, C., Chauvin, G., Christiaens, V. et al., 2022, A&A, 664, A139, “In-depth direct imaging and spectroscopic characterization of the young Solar System analog HD 95086”
- Desgrange, C., Heinesen, A., and Buchert, T., 2019, International Journal of Modern Physics D, 28, 1950143, “Dynamical spatial curvature as a fit to Type Ia supernovae”

Co-author: 13 publications, including one in second author

- Stasevic, S., Milli, J., Mazoyer, J., et al., 2023, A&A, accepted, “An inner warp discovered in the disk around HD 110058 using VLT/SPHERE and HST/STIS.”
- Landman, R., Snellen, I. A. G., Keller, C. U., et al., 2023, A&A, 675, A157, “Trade-offs in high-contrast integral field spectroscopy for exoplanet detection and characterisation. Young gas giants in emission.”
- Palma-Bifani, P., Chauvin, G., Bonnefoy, M. et al., 2023, A&A, 670, A90, “Peering into the young planetary system AB Pic. Atmosphere, orbit, obliquity, and second planetary candidate.”
- Le Coroller, H., Nowak, M., Wagner K. et al., 2022, A&A, 667, A142, “Efficiently combining α CenA multi-epoch high-contrast imaging data. Application of K-Stacker to the 80 hours NEAR campaign”
- Xie, C., Choquet, E., Vigan, A., et al., 2022, A&A, 666, A32, “Reference-star differential imaging on SPHERE/IRDIS”
- Gallenne, A., Desgrange, C., Milli, J. et al., 2022, A&A, 665, A41, “Probing the innermost region of the AU Microscopii debris disc”
- Gratton, Keller, Diolaiti, et al., 2022, Proceedings of the SPIE, 12184, 121844F, “MedRes: a new MEdium RESolution integral field spectrograph for SPHERE”
- Boccaletti, Chauvin, Wildi, et al. 2022, Proceedings of the SPIE, 12184, 121841S, “Upgrading the high contrast imaging facility SPHERE: science drivers and instrument choices”
- Bonavita, M., Gratton, R., Desidera, S. et al., 2021, A&A, 663, A144, “New binaries from the SHINE survey”
- Asensio-Torres, R., Henning, T., Cantalloube, F. et al., 2021, A&A, 652, A101, “Perturbers: SPHERE detection limits to planetary-mass companions in protoplanetary disks”
- Gratton, R., D’Orazi, V., Pacheco, T. A. et al., 2020, A&A, 646, A61, “Investigating three Sirius-like systems with SPHERE”
- Cantalloube, F., Gomez-Gonzalez, C., Absil, O. et al., 2020, Proceedings of SPIE, 11448, 114485A, “Exoplanet imaging data challenge: benchmarking the various image processing methods for exoplanet detection”
- Le Coroller, H., Nowak, M., Delorme, P. et al., 2020, Astronomy and Astrophysics, 639, A113, “K-Stacker: an algorithm to hack the orbital parameters of planets hidden in high-contrast imaging. First applications to VLT/SPHERE multi-epoch observations”

Last modification: 18/09/2023