Marion VILLENAVE

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marion.f.villenave@jpl.nasa.gov
ORCID ID: 0000-0002-8962-448X
Publication list

Research interests

Protoplanetary disks, High resolution imaging of protoplanetary disks (mm interferometry and scattered light), Radiative transfer modeling.

Scientific appointments

2021 — **NASA Postdoctoral Fellow, JPL, Pasadena, USA**

2017 – 2020 **PhD in Astrophysics, IPAG, Grenoble, France**
Project: Constraining the processes of protoplanetary disks evolution
Advisers: F. Ménard, M. Benisty, W. R. F. Dent

04/2017 – 09/2017 Internship in Astrophysics, IPAG, Grenoble, France
Project: ALMA survey of protoplanetary disks in the Chamaeleon II star-forming region
Advisers: F. Ménard

03/2016 – 05/2016 Internship in Astrophysics, ESO, Santiago, Chile
Project: Spectroscopic measurement of Cepheid temperatures
Advisers: A. Mérand and P. Kervella

09/2015 – 02/2016 Internship in Particle Physics, Laboratoire de l'Accélérateur Linéaire (LAL), Orsay, France
Project: Search for double Higgs boson production in the γγbb channel with the ATLAS detector at LHC (CERN)
Advisers: M. Escalier and L. Fayard

Education

2017 – 2020 **PhD in Astrophysics**, IPAG, Grenoble, France

2016 – 2017 **MSc in Astrophysics**, Université Paul Sabatier, Toulouse, France

2013 – 2017 **MSc in Engineering,** Institut Supérieur de l'Aéronautique et de l'Espace (ISAE-Supaéro), Toulouse, France

Distinction

2017 – 2019 Studentship at the European Southern Observatory, Santiago, Chile

Contributed talks in conferences

12/2020 Five years after HL Tau: a new era in planet formation
Observations of edge-on protoplanetary disks with ALMA: measuring vertical settling of dust grains

04/2020 Building Blocks of Planets 2020, online conference
Edge-on observations of young disks

03/2019 Planet-Forming Disks, a workshop to honour A. Natta, Menaggio, Italy
An ALMA continuum survey of edge-on disks

01/2019 Protoplanetary Disk Workshop, Santiago, Chile
Spatial segregation of dust grains in J1608 and J1852 transition disks

07/2018 Société Française d'Astronomie et d'Astrophysique, Bordeaux, France
Probing protoplanetary disks evolution in the Chamaeleon II star-forming region

Institute colloquia and team seminars

12/2020 Institut de Recherche en Astrophysique et Planétologie, Toulouse, France

12/2019 Max Planck Institute for Astronomy, Heidelberg, Germany

11/2019 European Southern Observatory, Garching, Germany

10/2019 European Southern Observatory, Santiago, Chile

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Successful P.I. Proposals

ALMA cycle 6:	*Probing an extreme case of dust settling in a protoplanetary disk.*	4h, band 6	Executed (A grade)
ALMA cycle 5:	*The Edge-On disk of HH 30: How much flatter can it get?*	4h, band 6	Executed (A grade)

Community work

01/2019 LOC of the *Protoplanetary Disk* Workshop at ESO Santiago

2017 – 2019 Active organizer of science coffee talks at ESO (once a month)

Observing experience

08/2018 One week of observations at ALMA, Chile. Training with the night shift astronomer on duty.

02/2018 Two nights, visitor observations on VLT/SPHERE, Chile

Teaching and Outreach

2019 Teaching assistant, solar system & exoplanets at Universidad de Chile (Prof L. Perez, BSc level)

2018 – 2019 Presentations about ESO and basic astrophysics to general public

2015 Academic support to high-school students in math, physics and chemistry

Programming and language skills

Programming in python

ALMA data reduction using the CASA software

Use of the radiative transfert code *mcfost* (Pinte et al. 2006, 2009)

Langages: French (native), English (fluent), Spanish (good), German (basics)

Additional interests

Mountain sports: paragliding, climbing and skiing

Competitive synchronized swimming (9 years)

Music: Flute (8 years) and Saxophone in a brass band (3 years)

References

Dr. Karl Stapelfeldt	karl.r.stapelfeldt@jpl.nasa.gov
Dr. François Ménard	francois.menard@univ-grenoble-alpes.fr
Dr. Myriam Benisty	myriam.benisty@univ-grenoble-alpes.fr

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Refereed Publications

First author publications

1. Observations of edge-on protoplanetary disk with ALMA. I. Results from continuum data.
   M. Villenave, F. Ménard, W. R. F. Dent, G. Duchêne, et al., 2020, A&A, 642, A164

2. Spatial segregation of dust grains in transition disks. SPHERE observations of 2MASS J16083070-3828268 and RXJ1852.3-3700.
   M. Villenave, M. Benisty, W. R. F. Dent, F. Ménard et al., 2019, A&A, 624, A7

First author paper in preparation

1. Probing protoplanetary disk evolution in the Chamaeleon II region.
   M. Villenave, F. Ménard, W. R. F. Dent, G. van der Plas, et al., submitted to A&A

Co-authored publications

1. Perturbers: SPHERE detection limits to planetary-mass companions in protoplanetary disks
   R. Asensio-Torres, T. Henning, Cantalloube F., ..., **M. Villenave**, et al., 2021, in press

2. The anatomy of an unusual edge-on protoplanetary disk II. Gas temperature and warm outer region
   C. Flores, G. Duchêne, S. Wolff, **M. Villenave**, et al., 2021, in press

3. The anatomy of an unusual edge-on protoplanetary disk I. Dust settling in a cold disk
   S. Wolff, G. Duchêne, K. Stapelfeldt, ..., **M. Villenave**, et al., 2021, in press

4. On going flyby in the young multiple system UX Tauri
   F. Ménard, N. Cuello, C. Ginski, ..., **M. Villenave**, et al., 2020, A&A, 635, L1

5. A gap, shadows, spirals, streamers: SPHERE observations of binary-disk in GG Tau A
   M. Keppler, A. Penzlin, M. Benisty, ..., **M. Villenave**, et al., 2020, A&A, 639, A62

6. Spirals inside the millimeter cavity of transition disk SR21
   G. Muro-Arena, C. Ginski, C. Dominik, ..., **M. Villenave**, et al., 2020, A&A, 636, L4

7. Shadowing and multiple rings in the protoplanetary disk of HD 139614
   G. Muro-Arena, M. Benisty, C. Ginski, ..., **M. Villenave**, et al., 2020, A&A, 635, A121

8. Evolution of protoplanetary disks from their taxonomy in scattered light: spirals, rings, cavities, and shadows.
   A. Garufi, M. Benisty, P. Pinilla, M. Tazzari, ..., **M. Villenave** et al., 2018, A&A, 620, A94

9. Shadows and asymmetries in the T Tauri disk HD 143006: evidence for a misaligned inner disk.
   M. Benisty, A. Juhász, S. Facchini, P. Pinilla, ..., **M. Villenave** et al., 2018, A&A, 619, A171

10. Dust modeling of the combined ALMA and SPHERE datasets of HD 163296. Is HD 163296 really a Meeus group II disk?
    G. A. Muro-Arena, C. Dominik, L. B. F. M. Waters, M. Min, ..., **M. Villenave** et al., 2018, A&A, 614, A24

11. The Circumstellar Disk HD 169142: Gas, Dust, and Planets Acting in Concert?
    A. Pohl, M. Benisty, P. Pinilla, C. Ginski, ..., **M. Villenave** et al., 2017, ApJ, 850, 1