

Gaspard Duchêne

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POSITIONS HELD

2016–.. Associate Research Astronomer at University of California, Berkeley
2010–.. Lecturer at University of California, Berkeley
2007–16 Assistant Research Astronomer at University of California, Berkeley
2003–07 Associate Astronomer at Observatoire de Grenoble (France)
2003–04 Adjunct Assistant Professor at University of California, Los Angeles
2000–03 Postdoctoral position at University of California, Los Angeles
1997–2000 Ph.D. student at Laboratoire d’Astrophysique de Grenoble;
Teaching Assistant in Physics at Grenoble University

EDUCATION

July 2000 Ph.D. thesis in Astrophysics, *Young binary systems and their nearby environment: high-angular resolution observations*, Grenoble University, supervisors: Dr. Jérôme Bouvier & Dr. François Ménard
June 1997 MAs in Astrophysics (“D.E.A.”) and in Physics (“Magistère”), Grenoble University

PUBLICATIONS

- 25 first-authored refereed articles published or in press
- 161 co-authored refereed articles published or in press
- 19 invited reviews and talks in international conferences, workshops and summer schools
- 29 contributed talks and posters in international conferences
- 1 invited book review

TEACHING EXPERIENCE

2016–21 Lower class course on *General Astronomy* (UC Berkeley)
2014–15 Lower class course on *The Planets* (UC Berkeley)
2013 Graduate seminar on *Adaptive Optics* (UC Berkeley)
2010–21 Upper class lab course *Optical/Infrared Astronomy Lab* (UC Berkeley)
May 2007 Lectures on *High angular resolution imaging of disks and planets* (VLTI Summer School)
June 2006 Lecture and Lab on *Preparation of VLTI observations* (VLTI Summer School)
2003–07 Upper class course *Stellar Evolution* (Grenoble Université Alpes)
Upper class lab course *Astronomical Observations* (Grenoble Université Alpes)
Lower class discussion section *Introduction to Astronomy* (Grenoble Université Alpes)
2003–04 Lower class course *Introduction to Astronomy* (UCLA)
June 2000 Lecture on *Young multiple systems at high angular resolution* (CNRS Summer School)
1997–2000 Lower class lab course *Introductory Physics* (Grenoble Université Alpes)

PROFESSIONAL SERVICE AND MEMBERSHIPS

- Referee for *Nature*, *ApJ*, *ApJL*, *AJ*, *A&A*, *A&AL*, *MNRAS* and *Science Advances*
- Member of the UC Keck Galactic Telescope Allocation Committee (2014–20; panel chair: 2016–20)
- Member of the Gemini Long and Large Program Telescope Allocation Committee (2016–17)
- Panel member for HST proposals review process (2010)
- Panel member for NSF AAG program (undisclosed dates)
- External expert for NASA XRP and EW grant programs (2015), the NASA Postdoctoral Fellowship program (2015 - ..), the Netherlands Organisation for Scientific Research (2009), the Belgium FP7–COFUND program (2014), the French Agence Nationale pour la Recherche (2011, 2013), the Swiss National Science Foundation (2017), the Chilean FONDECYT (2019), the Belgian Fund for Scientific Research FNRS (2021)
- Adaptive Optics Seminar organizer at UC Berkeley (2008 - 2013)
- Astronomy Colloquium organizer at UCLA (Fall 2003)
- Public activities organizer at Observatoire de Grenoble (2004 - 2007)
- Member of the Selection Committee for UC Berkeley’s SURF program (2013 – 2015)
- User support coordinator for Jean-Marie Mariotti Center (2004 - 2007)
- Member of the American Astronomical Society since 2001
- Member of the Société Française d’Astronomie et d’Astrophysique since 2003

RESEARCH GRANTS AWARDED

- 2022 Co-I of JWST-GO program *Dust settling and grain evolution in edge-on protoplanetary disks* (PI: F. Ménard; \$35,446 Co-I share)
- 2017 PI of NASA-XRP program *On the edge: Assessing the diversity of protoplanetary disks from a unique perspective* (\$390,097)
- 2016 PI of NSF-AAG program *Collaborative research: Tracing the evolution of Planetary Systems* (\$28,685)
- 2014 PI of NSF-AAG program *Extreme mass ratio multiple stellar systems: Understanding the origin of the brown dwarf desert and directly imaged planets* (\$268,171)
- 2014 Co-I of NSF-AAG program *First-Light Debris Disk Science with the Gemini Planet Imager* (PI: M. Fitzgerald, UCLA; \$88,087 subaward)
- 2014 PI of HST-GO program *Imaging the tenuous dusty atmosphere of edge-on protoplanetary disks* (\$58,446)
- 2012 Co-I of HST-GO program *Imaging Newly-Identified Edge-on Protoplanetary Disks in Nearby Star-Forming Regions* (PI: K. Stapelfeldt, NASA-GSFC; \$36,815 Co-I share)
- 2012 PI of AAS Small Research Grant *Demonstrating the scientific potential of FIRST, a fibered aperture masking instrument designed to characterize exoplanets* (\$5,000)
- 2010 Co-I on ANR program *Dynamical evolution of young stellar clusters* (PI: E. Moraux; €300,000 total)
- 2010 Co-I on ANR program *Formation and evolution planetary systems* (PI: C. Pinte; €150,000 total)
- 2007 Co-I on ANR program *Dusty Disks* (PI: F. Ménard; €500,000 total)
- 2006 Co-PI (with J. Graham, UCB) of France-Berkeley Fund program *Studying the properties of protoplanetary disks across wide ranges of stellar ages and masses* (\$9,000 total)

REFEREED PUBLICATIONS

186 articles published or in press. Since 2021:

- A multi-wavelength study of the highly asymmetric debris disk around HD 111520*, Crotts, Draper, Matthews, **Duchêne** and 6 co-authors, 2022, *ApJ*, in press (arxiv:2204.11759)
- A highly settled disk around Oph163131*, Villenave, Stapelfeldt, **Duchêne** and 10 co-authors, 2022,

ApJ, 930, 11

Detection of near-infrared water ice at the surface of the (pre)transitional disk AB Aur: Informing icy grains abundance, composition, and size, Betti, Follette, Jorquera, **Duchêne** and 16 co-authors, 2022, *AJ*, in press (arxiv:2201.08868)

The effects of starspots on spectroscopic mass estimates of low-mass young stars, Flores, Connelley, Reipurth and **Duchêne**, 2022, *ApJ*, 925, 21

Detection and bulk properties of the HR 8799 planets with high resolution spectroscopy, Wang, Rufio, Morris, Delorme, Jovanovic, Pezzato, Echeverri, Finnerty, Hood, Zanazzi, Bryan, Bond, Cetre, Martin, Mawet, Skemer, Baker, Xuan, Wallace, Wang, Bartos, Blake, Boden, Buzard, Calvin, Chun, Doppmann, Dupuy, **Duchêne**, and 23 more co-authors, 2022, *AJ*, 162, 148

Circumbinary and circumstellar disks around the eccentric binary IRAS 04158+2805 - a testbed for binary-disc interaction, Ragusa, Fasano, Toci, **Duchêne**, and 9 more co-authors, *MNRAS*, 507, 1157

Four new Planetesimals Around TYPical and Pre-main sequence Stars (PLATYPUS) Debris discs at 8.8 mm, Norfolk, Maddison, Marshall, Kennedy, **Duchêne**, and 7 more co-authors, *MNRAS*, 507, 3139

A deep polarimetric study of the asymmetrical debris disk HD 106906, Krotts, Matthews, Esposito, **Duchêne**, and 16 more co-authors, 2021, *ApJ*, 915, 58

ALMA imaging of the M dwarf Fomalhaut C's debris disc, Cronin-Coltsmann, Kennedy, Kalas, Milli, Clarke, **Duchêne**, and 6 more co-authors, 2021, *MNRAS*, 504, 4497

A coplanar circumbinary protoplanetary disk in the TWA 3 triple M dwarf system, Czekala, Ribas, Cuello, Chiang, Macías, **Duchêne**, and 2 more co-authors, 2021, *ApJ*, 912, 6

The anatomy of an unusual edge-on protoplanetary disk. II. Gas temperature and a warm outer region, Flores, **Duchêne**, and 10 more co-authors, 2021, *AJ*, 161, 239

The anatomy of an unusual edge-on protoplanetary disk. I. Dust settling in a cold disk, Wolff, **Duchêne**, and 8 more co-authors, 2021, *AJ*, 161, 238

The GRAVITY young stellar object survey. V. The orbit of the T Tauri binary star WW Cha, Eupen, Labadie, Grellmann, Perrault, Brandner, **Duchêne**, and 56 more co-authors, 2021, *A&A*, 648A, 37

Gemini Planet Imager spectroscopy of the dusty substellar companion HD 206893 B, Ward-Duong, Patience, Follette, De Rosa, Rameau, Marley, Saumon, Nielsen, Rajan, Greenbaum, Lee, Wang, Czekala, **Duchêne**, and 44 more co-authors, 2021 *AJ*, 161, 5

First-author articles prior to 2021:

The Gemini Planet Imager view of the HD 32297 debris disk, **Duchêne**, and 63 more co-authors, 2020, *AJ*, 159, 251

Is stellar multiplicity universal? Tight stellar binaries in the Orion Nebulae Cluster, **Duchêne**, Lacour, Moraux, Goodwin & Bouvier, 2018, *MNRAS*, 478, 1825

A search for passive protoplanetary disks in the Taurus-Auriga star-forming region, **Duchêne**, Becker, Yang, Bouy, De Rosa, Patience & Girard, 2017, *MNRAS*, 469, 1783

Herbig Ae/Be stars: Multiplicity and consequences, **Duchêne**, 2015, *Ap&SS*, 355, 291

Spatially resolved imaging of the two-component η Crv debris disk with Herschel, **Duchêne**, Arriaga Wyatt, Kennedy, Sibthorpe, Lisse, Holland, Wisniewski, Clampin, Kalas, Pinte, Wilner, Booth, Horner, Matthews & Greaves, 2014, *ApJ*, 784, 148

Substellar multiplicity in the Hyades cluster, **Duchêne**, Bouvier, Moraux, Bouy, Konopacky & Ghez, 2013, *A&A*, 555A, 137

Stellar multiplicity, **Duchêne** & Kraus, 2013, *ARA&A*, vol. 51, 269

Disks around pre-main sequence stars, **Duchêne**, 2011, IAU Symposium 270, *Computational Star Formation*, J. Alves, B. Elmegreen, J. Girart & V. Trimble (eds.), Cambridge Univ. Press, 45

Planet formation in binary systems: a separation-dependent mechanism?, **Duchêne**, 2010, *ApJL*, 709, L114

Panchromatic observations and modeling of the HV Tau C edge-on disk, **Duchêne**, McCabe, Pinte,

- Stapelfeldt, Ménard, Duvert, Ghez, Maness, Bouy, Barrado y Navascués, Morales-Calderón, Wolf, Padgett, Brook & Noriega-Crespo, 2010, *ApJ*, 712, 112
- High angular resolution imaging of disks and planets*, **Duchêne**, 2008, *New Astron. Rev.*, 52, 117
- Multiple protostellar systems. II. A high resolution near-infrared imaging survey in nearby star-forming regions*, **Duchêne**, Bontemps, Bouvier, André, Djupvik & Ghez, 2007, *A&A*, 476, 229
- New observational frontiers in the multiplicity of young stars*, **Duchêne**, Delgado-Donate, Haisch, Loinard & Rodríguez, 2007, in *Protostars & Planets V*, B. Reipurth, D. Jewitt, and K. Keil (eds.), Univ. of Arizona Press, p. 379
- Preparation of VLTI observations*, **Duchêne** & Duvert, 2007, *New Astron. Rev.*, 51, 650
- Accurate stellar masses in the multiple system T Tauri*, **Duchêne**, Beust, Adjali, Konopacky & Ghez, 2006, *A&A*, 457, L9
- The circumstellar environment of T Tauri S at high spatial and spectral resolution*, **Duchêne**, Ghez, McCabe & Ceccarelli, 2005, *ApJ*, 628, 832
- Multiple protostellar systems. I. A deep near infrared survey of Taurus and Ophiuchus protostellar objects*, **Duchêne**, Bouvier, Bontemps, André & Motte, 2004, *A&A*, 427, 651
- A multiwavelength scattered light analysis of the dust grain population in the GG Tauri Circumbinary Ring*, **Duchêne**, McCabe, Ghez & Macintosh, 2004, *ApJ*, 606, 969
- No fossil disk in the T Tauri multiple system V773 Tauri*, **Duchêne**, Ghez, McCabe & Weinberger, 2003, *ApJ*, 592, 288
- A layered edge-on circumstellar disk around HK Tau B*, **Duchêne**, Ménard, Stapelfeldt & Duvert, 2003, *A&A*, 400, 559
- Resolved Near-Infrared Spectroscopy of the Mysterious Pre-Main-Sequence Binary System T Tauri S*, **Duchêne**, Ghez & McCabe, 2002, *ApJ*, 568, 771
- Visual binaries among high-mass stars. An adaptive optics survey of OB stars in the NGC 6611 cluster*, **Duchêne**, Simon, Eisloffel & Bouvier, 2001, *A&A*, 379, 147
- Accretion in Taurus PMS binaries: a spectroscopic study*, **Duchêne**, Monin, Bouvier & Ménard, 1999, *A&A*, 351, 954
- Low-mass binaries in the young cluster IC 348: implications for binary formation and evolution*, **Duchêne**, Bouvier & Simon, 1999, *A&A*, 343, 831
- Binary fraction in low-mass star forming regions: a reexamination of the possible excesses and implications*, **Duchêne**, 1999, *A&A*, 341, 547

INVITED REVIEWS AND TALKS IN INTERNATIONAL CONFERENCES _____

19 invited reviews and talks in international conferences and summer schools. Since 2008:

- Disks in multiple stellar systems*, in *Great Barriers in Planet Formation*, **Duchêne**, Cairns, July 2019
- Characterizing dust in debris disks: recent advances and unsolved issues*, in *Cosmic Dust XII*, **Duchêne**, Tokyo, August 2018
- Herbig AeBe stars: multiplicity*, ESO workshop on *Herbig AeBe stars: the missing link in star formation* **Duchêne**, Santiago de Chile, April 2014
- Multiplicity in the early phases of stellar evolution*, **Duchêne**, ESO-MPE-USM-MPA workshop on *Formation and early evolution of very low mass stars and brown dwarfs*, Garching, October 2011
- Disks around pre-main sequence stars*, **Duchêne**, 2011, IAU Symposium 270, *Computational Star Formation*, J. Alves, B. Elmegreen, J. Girart & V. Trimble (eds.), Cambridge Univ. Press, 45
- High-resolution disk observations*, **Duchêne**, OPTICON/FP7 workshop on *Circumstellar disks and planets – Science cases for next-generation optical/infrared long-baseline interferometers*, Wolf, Malbet, Alexander, Berger, Creech-Eakman, **Duchêne**, Dutrey, Mordasini, Pantin, Pont, Pott, Tatulli & Testi, *A&A Rev.*, 20, 52
- Scattered light images of protoplanetary and debris disks*, **Duchêne**, ESO-MPE-MPA-USM Workshop,

From circumstellar disks to planetary systems, Garching, November 2009

Stellar multiplicity and the prospects for planet formation, **Duchêne**, IAU General Assembly Special Session on *Young stars, brown dwarfs and protoplanetary disks*, Rio de Janeiro, August 2009, in *Highlights of Astronomy*, I. Cobertt, J. Gregorio-Hetem, and S. Alencar (eds.), Cambridge Univ. Press, 15, 764

Observational properties of disks and young stellar objects, **Duchêne**, Ménard, Muzzerolle & Mohanty, 2009, in *Structure Formation in Astrophysics*, G. Chabrier (Ed.), Cambridge Univ. Press, 323

The observed multiplicity of low-mass stars: from embedded protostars to open clusters, **Duchêne** & Bouvier, 2008, in *Multiple stars accross the H-R diagram*, ESO Astrophysics Symposia, Springer-Verlag Berlin Heidelberg, p. 219

1 invited book review:

Review of “*Adaptive Optics for Biological Imaging*” edited by Joel A. Kubby, **Duchêne**, 2014, *BioMedical Engineering OnLine*, 13, 14