Nicolas F. Bouché

Curriculum Vitae

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Education

2016 **HDR diploma**, *Université Paul Sabatier*, Toulouse.

1997-2003 **Ph.D.**, *Université du Massachusetts*, Amherst, MA, .

1993-1997 **License in Physics**, *Catholic University of Louvain-la-Neuve*, Louvain-la-Neuve, BE.

Professional Experience

2025–Present **Tenured Researcher**, *CNRS*, Research Center in Astrophysics of Lyon (CRAL).
Directeur de recherche

2024-2025 **Sabbatical researcher**, *CCA*, Flatiron Institute, NY, (5 months).

2018–2025 **Tenured Researcher**, *CNRS*, Research Center in Astrophysics of Lyon (CRAL).
Chargé de recherche

2012–2018 **Tenured Researcher**, *CNRS*, Institut of Research in Astrophysics and Planetology (IRAP) of Toulouse.

2009–2012 **Marie Curie Fellow**, *Université Paul Sabatier*, Toulouse, with UC Santa Barbara.

2005–2009 **Post-doctoral Fellow**, *Max Planck Institut für extraterrestrische Physik (MPE)*, .

2003–2004 **Post-doctoral Associate**, *European Southern Observatory (ESO)*, Garching, DE.

Responsibilities

2023–Present vice-director, Center for Research in Astrophysics of Lyon (CRAL)

2019–present ELT/HARMONI: co-I and Science Team member.

2011–2018 VLT/MUSE: Science coordinator for the "quality control" development related to the MUSE software.

2010–present VLT/MUSE: Active Member in the MUSE consortium. PI of MEGAFLOW program.

2006–2009 VLT/KMOS: Project Scientist for the instrument KMOS.

Awards, Grants and Fellowships

2023-2027 Grant from the 'Agence National de la Recherche (ANR) "DARK" (PI - 310k)

2018–2022 Grant from the 'Agence National de la Recherche (ANR) "3DGasFlows" (PI - 395k), resulting in > 15 publications

2012–2016 Career Integration Grant (100 kEur) from the European 7th framework

2008-2012 Marie-Curie International Outgoing Fellowship (334k EUR)

1991 2nd prize at the EU Contest for Young Scientists (Zürich) & 1st prize at the Belgian National Contest for Young Scientists

Publications

• 125 publications with around 14,900+ citations ('H'-index = 59), of which 24 as first-author with 2000+ citations ('H'-index = 17). Over 100 oral communications, of which 15 invited.
• Development of Bayesian algorithm (GalPaK3D) for disk kinematics from hyperspectral 3D data
• Chapter in "Gas accretion onto galaxies" edited by A. Fox et R. Davé, Springer AG, 2017, p. 355

Research Management

2019–present **ELT/HARMONI,** co-Investigator for CRAL, 20% FTE; Sc. team member; and co-leader of Extragalactic Science Working Group

Interdisciplinary research

2017-2019 **PI of an interdisciplinary research on applied statistics and biophysics** with the statisticien K. McConway from the Open University [UK] (Bouché & McConway 2019 Bioelectromagnetics, 40, 539).

Workshop organizer

11/2024 **"Deeplearning3d"**, *Organisazer*, Workshop on hyperspectal data Machine Learning techniques", (Lyon).

05/2023 **"The intergalactic and circum galactic gas around galaxies"**, *Organizer*, Workshop for the FR community aorund the baryon cycle, (Lyon).

03/2022 **Distant universe with Harmoni** , *Organizer*, Working to prepare the FR community for the Harmoni hyperspectral imager, (Lyon).

Supervising

Supervision or co-supervision of 5 postdocs, 5 doctorants, >15 master students, 5 undergraduate students, and 2 high-school students:

Postocs: Bouché, Finley et al. (2016), Finley et al. (2017a, 2017b), Zabl et al. (2019, 2020, 2021), DeFelippis et al. (2021,2024), Ciocan, Bouché et al. (2025a, subm.)

Ph.D. students: Genel et al. (2008, 2009, 2010), Schroetter et al. (2015, 2016, 2019, 2021), Cherrey, Bouché et al. (2024, 2025), Langan et al. (2023), Jeanneau et al. (2025), in prep., Bourahma et al. (2025), in prep.)

Master: Bouché, Bera et al. (2022), Bouché, Michel, Dubois et al. (2021)

High-school: Bouché, Hohensee, Vargas et al. (2012)

Outreach activities

Press releases 'The Universe's missing matter found' (CNRS Press release, 2021) link; 'Feeding Galaxy Caught in Distant Searchlight' (ESO Press Release, 2013) link

Radio 2023 Radio interview on galactic winds on France Culture (url); 2023 Radio interview for Radio Télévision Suisse(RTS) on 'CQFD' (url); 2021 Radio interview for 'the scientific method' of France Culture on galactic winds (url)

Skills

Matlab, Python (expert), SQL, Data mining, Machine Learning/CNN, Bayesian statistics, Hyperspectral imaging