Curriculum vitae (updated May 1, 2023)

Dr. Raphaël Duqué

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Research interests

Gamma-ray bursts, multi-messenger astronomy, relativistic jets, compact binary coalescences, high-energy radiation processes

Positions held

since 2021 — Post-doctoral researcher at *Goethe Universität Frankfurt-am-Main*. Member of advanced ERC project *JETSET* (PI: Prof. Luciano Rezzolla, Institute for Theoretical Physics).

Awards

2022 — Honorable mention of the "Gravitational-Wave International Committee and Friends of Stefano Braccini" PhD thesis prize.

Education

2018 – 2021 — PhD in Astronomy and astrophysics at *Sorbonne Université*. Doctoral thesis entitled[1] "Compact object coalescences and gamma-ray bursts in the gravitational-wave era", prepared under the advisory of Frédéric Daigne et Robert Mochkovitch at the *Institut d'astrophysique de Paris*, defended in Paris on September 10$^{\text{th}}$ 2021.

2017 – 2018 — Master's degree in Astronomy, astrophysics and space engineering at *Université Paris-Diderot* (*cum laude*). Research internship at the *Institut d'astrophysique de Paris* on "The afterglow of the august-17-2017 binary neutron star merger multi-messenger event".

2014 – 2017 — *École polytechnique* multi-disciplinary diploma. Specialization in physics, research internship at the European Gravitational Observatory (Italy) on the simulation of Gaussian laser beams in the optical benches of the Virgo gravitational-wave interferometer.

Teaching

August 2022 — Summer school "Explore 2022" at *Goethe Universität Frankfurt-am-Main*: Introductory course to gamma-ray bursts (5 h).

since 2021 — Tutorials in "Introduction to astrophysics" at *Goethe Universität Frankfurt-am-Main* (in English, 48 h/year).

2018 – 2021 — Tutorials and practical sessions in Master's degree in Astronomy and Astrophysics, *Observatoire de Paris-Meudon* (64 h/year) : Courses "Statistical Physics", "Astronomical Data Analysis", "Astronomical Instrumentation and Observations" .

2018 – 2021 — Public courses in General Astronomy for the *Explorer et comprendre l'Univers* curriculum of the *Observatoire de Paris-Meudon*.

Responsibilities and other activities

since 2021 — Member of the Observational Science Board of 3$^{\text{rd}}$-generation interferometer project Einstein Telescope (div. 4: multi-messenger observations).

since 2021 — Publication refereeing (MNRAS, A&A).

since 2019 — Burst advocate for the high-energy astronomy satellite mission *SVOM*.

2018 – 2021 — Project lead and developer of `astro-reduce`, an astronomical image-reduction software.

2018 – 2021 — Co-organiser of multi-messenger astronomy journal-club between *Institut d'astrophysique de Paris* and *Astroparticules et cosmologie* laboratories (Paris).

[1] Thesis manuscript here: https://hal.sorbonne-universite.fr/tel-03474195v1.

Invited seminars

Mai 2023	*Astro-particules et cosmologie* (Paris)
Mai 2023	*Institut d'astrophysique de Paris*
February 2022	*Astro-particules et cosmologie* (Paris)
February 2022	KTH Royal Institute of Technology (Stockholm)
November 2021	*Goethe Universität* (Frankfurt)
November 2020	TAPIR at Caltech (Pasadena)
November 2020	Hebrew University (Jerusalem)
October 2020	Columbia University (New York City)
October 2020	Grandma Collaboration astrophysics seminar (Paris)
October 2020	*Osservatorio Astronomico di Brera* (Milan)
September 2020	Jagiellonian University (Cracow)
August 2018	Kavli Institute for Astronomy and Astrophysics & National Astronomical Observatory of China (Beijing)

Conference contributions

Juin 2023	*Journées de la SF2A* (Strasbourg)
September 2022	The Unconventional Think-Tank (Otranto).
May 2022	ELEMENTS Annual Conference (Frankfurt).
March 2021	National "Multi-messenger astrophysics" Group meeting (Paris).
October 2020	General Assembly of National Gravitational-Waves Working Group (Paris).
December 2019	Texas Symposium (Portsmouth): Prize for best student talk in the "X-ray messenger" session.
May 2019	Nanjing GRB Conference and *SVOM* workshop (Nanjing).
March 2019	Asterics Radioastronomy Conference (Groningen).
October 2018	Eighth Fermi Symposium (Baltimore, poster).
2018 – 2021 (yearly)	"Elbereth" conference by astronomy and astrophysics graduate students in the Paris Area (Paris).

Publications[2] (peer-reviewed journals)

MNRAS (subm.)	*Extended emission in compact object merger-induced gamma-ray bursts from fallback accretion* Musolino, C. ; **Duqué, R.** ; Rezzolla, L.
MNRAS (subm.)	*Impact of inhomogeneous ejecta in jet dynamics and afterglow emission in binary neutron star mergers*
MNRAS 513 (2022)	*Flares in gamma-ray burst X-ray afterglows as prompt emission from slightly misaligned structured jets* **Duqué, R.** ; Beniamini, P. ; Daigne, F ; Mochkovitch R.
A&A 652 (2021)	*The potential role of binary neutron star merger afterglows in multimessenger cosmology* Mastrogiovanni, S. ; **Duqué, R.** ; Chassande-Mottin, E. ; Daigne, F. ; Mochkovitch, R.
A&A 651 (2021)	*Prospects for kilonova signals in the gravitational-wave era* Mochkovitch, R. ; Daigne, F. ; **Duqué, R.** ; Zitouni, H.
A&A 639 (2020)	*Probing high-density neutron star mergers with afterglow counterparts* **Duqué, R.** ; Beniamini, P. ; Daigne, F. ; Mochkovitch R.
MNRAS 492 (2020)	*X-ray plateaus in gamma-ray bursts' light curves from jets viewed slightly off-axis* Beniamini, P. ; **Duqué, R.** ; Daigne, F. ; Mochkovitch R.
A&A 631 (2019)	*Radio afterglows of binary neutron star mergers: a population study for current and future gravitational-wave observing runs* **Duqué, R.** ; Daigne, F. ; Mochkovitch, R.

[2] More details on publications here: https://ui.adsabs.harvard.edu/user/libraries/xb2x2Cr4Q1uZ069nbnda6g.

Publications (other)

GCN 26386 (2019)	*LIGO/Virgo S191205ah: no counterpart candidate in SVOM/GWAC observations* Dornic, D. ; Han, X. ; Götz, D. ; Mao, J. R. ; Sun, S. S. ; **Duqué, R.**
PoS 357 (2019)	*Neutron star merger afterglows: population prospects for the gravitational-wave era* **Duqué, R.** ; Daigne, F. ; Mochkovitch, R.