

Curriculum vitae (updated February 17th 2022)

Raphaël Duque

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RESEARCH INTERESTS

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

EDUCATION

- 2018 – 2021 PhD in Astronomy and astrophysics at *Sorbonne Université*. Doctoral thesis entitled¹ “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 10th 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.

PROFESSIONAL EXPERIENCE

- 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).

TEACHING

- since 2021 Tutorials in Master’s course “Introduction to astrophysics” at *Goethe Universität Frankfurt-am-Main* (in English, 48 hETD/year).
- 2018 – 2021 Tutorials and practical sessions in Master’s degree in Astronomy and Astrophysics, *Observatoire de Paris-Meudon*: 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 3rd-generation interferometer project Einstein Telescope (div. 4: multi-messenger observations).
- since 2021 Publication refereeing (MNRAS, 1 article).
- 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).

¹The manuscript can be retrieved at the following address: https://bandang0.github.io/rduqueonline/docs/PGRBGWE211001_archive.pdf.

INVITED SEMINARS

February 2022	KTH Royal Institute of Technology (Stockholm)
November 2021	<i>Goethe Universität</i> (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	<i>Osservatorio Astronomico di Brera</i> (Milan)
September 2020	Jagiellonian University (Cracow)
August 2018	Kavli Institute for Astronomy and Astrophysics & National Astronomical Observatory of China (Beijing)

CONFERENCE CONTRIBUTIONS

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 <i>SVOM</i> 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).

Appendix: Complete list of publications²

Publications (refereed)

MNRAS (under review)	<i>Flares in gamma-ray burst X-ray afterglows as prompt emission from slightly misaligned structured jets</i> Duque, R. ; Beniamini, P. ; Daigne, F. ; Mochkovitch R.
A&A 652 (2021)	<i>The potential role of binary neutron star merger afterglows in multimessenger cosmology</i> Mastrogiovanni, S. ; Duque, R. ; Chassande-Mottin, E. ; Daigne, F. ; Mochkovitch, R.
A&A 651 (2021)	<i>Prospects for kilonova signals in the gravitational-wave era</i> Mochkovitch, R. ; Daigne, F. ; Duque, R. ; Zitouni, H.
A&A 639 (2020)	<i>Probing high-density neutron star mergers with afterglow counterparts</i> Duque, R. ; Beniamini, P. ; Daigne, F. ; Mochkovitch R.
MNRAS 492 (2020)	<i>X-ray plateaus in gamma-ray bursts’ light curves from jets viewed slightly off-axis</i> Beniamini, P. ; Duque, R. ; Daigne, F. ; Mochkovitch R.
A&A 631 (2019)	<i>Radio afterglows of binary neutron star mergers: a population study for current and future gravitational-wave observing runs</i> Duque, R. ; Daigne, F. ; Mochkovitch, R.

Publications (other)

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

²This list can also be retrieved at the following address: <https://ui.adsabs.harvard.edu/user/libraries/xb2x2Cr4Q1uZ069nbnda6g>.