

Eva Laplace | Astrophysicist

🌐 evalaplace.github.io ✉ e.c.laplace@uva.nl 📍 Science Park 904, 1098XH Amsterdam, NL
Available starting date: Fall 2021

Education and degrees

PhD candidate in astrophysics	Amsterdam, The Netherlands (NL)
Anton Pannekoek Institute (API), University of Amsterdam	Nov. 2017 – Nov. 2021 (exp.)
Master student in physics (achieved the max. grade of 1.0)	Tübingen, Germany
University of Tübingen, Degree: Master of Science	Jan. 2016 – Apr. 2017
Bachelor student in physics (av. grade: 1.8)	Tübingen, Germany
University of Tübingen, Degree: Bachelor of Science	Oct. 2011 – Dec. 2015
International high school student	Strasbourg, France
Lycée International des Pontonniers	2008–2011
Degrees: Baccalauréat (French diploma) and Abitur (German diploma)	

Research Experience

PhD research project at the Anton Pannekoek Institute	Amsterdam, NL
Advisors: Prof. Selma de Mink, Prof. Stephen Justham	Nov. 2017 – present
Subject: Late evolution, death and afterlife of stars stripped in binaries	
Invited research visit, National Astronomical Observatory of Japan	Tokyo, Japan
Advisor: Prof. Takashi Moriya	2 months, Sept. – Oct. 2019
Subject: Bayesian inference of stripped-envelope supernovae light-curves	
International Program Associate in the MAXI team lab at RIKEN	Wako, Japan
Advisors: Prof. Andrea Santangelo, Dr. Tatehiro Mihara	9 months, Jan. – Oct. 2016
Subject: Spectral and timing properties of the Be X-ray binary EXO 2030+375	
Traineeship at the European Space Astronomy Centre	Madrid, Spain
Advisors: Dr. Peter Kretschmar, Emilio Salazar	3 months, Aug. – Nov. 2015
Subject: Long-term timing variability of Be X-ray binaries.	
Traineeship at the European Space Astronomy Centre	Madrid, Spain
Advisors: Dr. Peter Kretschmar, Emilio Salazar, Miguel Arregui	3 months, July – Oct. 2014
Subject: Developing The BeXRB monitor , a web-based tool for astronomical discovery	
Student assistant at the Astronomy & Astrophysics Institute	Tübingen, Germany
Advisor: Dr. Dmitry Klochkov	2 years, Oct. 2013 – Jul. 2015
Study of hardness-luminosity dependence in transient accreting X-ray pulsars	

Grants, successful proposals, and scholarships

2018 – present: Total of > 4000 Euro awarded for conferences and research visits abroad by the Leids Kerkhoven-Bosscha Fonds, the Space Telescope Science Institute, Baltimore, USA, and the Yukawa Institute in Kyoto, Japan

2018: PI: E. Laplace; "Stripped-envelope supernovae from massive binaries", pilot program of 500 000 CPU hours, the Dutch national supercomputer Cartesius, Amsterdam, NL

2016: Short-term International Program Associate scholarship RIKEN, Japan

Teaching and advising experience

Teaching assistant for the MSc lecture "Structure and Evolution of Stars", University of Amsterdam, NL. (2019-2020 with Prof. Lamers, 2019 with Prof. de Mink, 2018 with Prof. Watts)

Teaching assistant at the summerschool "Stellar astrophysics with MESA" in Beijing, China, Summer 2018

Co-advisor of Carla Alejandra Calle García, summer student through the ASPIRE program at API, NL, with Dr. Robert Farmer, Summer 2019

Advisor of Thomas Dodds, Bachelor student, at API, NL with Prof. Selma de Mink, 2018

Guest lecturer in the astrophysics course, Leibniz Kolleg, Tübingen, Germany, 2014

Leadership skills

2018 – now: Founder and main organizer of weekly meetings of the BinCosmos group, API, NL

2018 – 2019: Chair of the PhD/Postdoc council at API, NL

2012 – 2017: Certified youth leader in summer camps for youth of challenged background, France and Germany (French BAFA diploma since 2012)

Scientific services and other academic activities

PhD representative in the Equity and Inclusion Committee of API, NL, since July 2020

Referee for Monthly Notices of the Royal Astronomical Society and Astronomy & Astrophysics since 2019

Large international collaborations

ChETEC: Chemical Elements as Tracers of the Evolution of the Cosmos; funded by the COST action program of the European Union. Member since 2020

BlackGEM: Optical robotic telescope array. Member since 2018

VFTS collaboration VLT-FLAMES Tarantula Survey of Massive Stars based on data from ESO/Very Large Telescope. Member since 2017

MAGNET: International collaboration for studying Be X-ray binaries. Member from 2014 to 2017

Scientific talks

October 2020 (invited) [upcoming]: "How being single or in a couple affects the death of massive stars" SCI-S seminar at ESAC, Madrid, Spain (online).

October 2020 [upcoming]: "How being single or in a couple affects the death of massive stars" Worskhop: *VFTS collaboration meeting 2020* (online).

September 2020 [upcoming]: "How being single or in a couple affects the death of massive stars" Conference: *German astronomical society meeting 2020* (online).

August 2020 (invited): "Life and death of stars stripped in massive binaries" High Energy Astrophysics Seminar, Hebrew University of Jerusalem, Israel (online).

August 2020: "Life and death of stars stripped in massive binaries" Informal seminar in the research group of Prof. Ilya Mandel, Melbourne, Australia (online).

July 2020: "How being single or in a couple affects the death of massive stars" Conference: *European Astronomical Society meeting 2020* and *Netherlands Astronomy Conference* (online).

May 2020 [postponed]: "Life and death of stars stripped in massive binaries" Conference: *Massive Stars Near and Far*, IAU symposium, Ballyconnell, Ireland (*awarded talk postponed to May 2021*).

April 2020: "A new way to visualize the structure and evolution of stars" API lunch Seminar, University of Amsterdam, Amsterdam, NL (online).

March 2020 (invited): "Life and death of stars stripped in massive binaries" High Energy Astrophysics Lunch seminar, Harvard University, Boston, USA.

February 2020: "Life and death of stars stripped in massive binaries" Conference: *14th Bonn neutron star workshop*, Bonn, Germany.

September 2019 (invited): "Life and death of stars stripped in massive binaries" Monthly seminar at RIKEN, Saitama, Japan.

September 2019: "Life and death of stars stripped in massive binaries" Lunch seminar, National Astronomical Observatory of Japan, Tokyo, Japan.

May 2019: "From stripped stars to gravitational waves" Conference: *Fifty-one ergs*, University of North Carolina, Raleigh, USA.

April 2019: "The size of stripped-envelope supernovae progenitors and its impact on gravitational-wave events" Conference: *The death and afterlives of stars*, STScl, Baltimore, USA.

November 2018: "Exploding stripped stars" Conference: *Massive stars and Supernovae*, Bariloche, Argentina.

October 2018: "Exploding stripped stars" Bonn-Amsterdam-Leuven massive stars meeting, Leuven, Belgium.

August 2018: "Exploding stripped stars" Galaxy coffee seminar MPIA Heidelberg, Germany.

September 2016: "A long-term periodicity in EXO 2030+375?" Conference: *Fall meeting of the Astronomical Society of Japan*, Ehime University, Matsuyama, Japan.

March 2016: "A long-term periodicity in EXO 2030+375?" Monthly seminar at RIKEN, Saitama, Japan.

August 2015: "The BeXRB monitor" Tech Talk seminar, ESAC, Madrid, Spain.

October 2014: "The BeXRB monitor" High Energy Astrophysics seminar, University of Tübingen, Tübingen, Germany.

Conferences, workshops, and research visits

Research visits.....

March 2020 (invited): Two weeks research visit to Prof. Selma de Mink at the Center for Astrophysics at Harvard University, Boston, USA (originally three weeks, cut short due to pandemic)

October 2019: Five days visit of Prof. Sung-Chul Yoon at Seoul National University, Seoul, South Korea

August 2018: One week visit to Prof. Maryam Modjaz at the Max Planck Institute for Astrophysics, Heidelberg, Germany

Conferences.....

May 2018: *Shocking Supernovae*, Stockholm, Sweden (**poster:** Self-consistent full evolutionary binary models of stripped-envelope supernova progenitors)

May 2018: Netherlands Astronomy Conference, Groningen, The Netherlands

April 2018: *European Week of Astronomy and Space Science 2018*, Liverpool, England

July 2017: *Impact of binaries on stellar evolution*, ESO Garching, Germany (**poster:** Are long-term periodicities and giant outbursts in BeXRBs driven by Kozai-Lidov oscillations?)

December 2016: *7 years of MAXI*, RIKEN, Saitama, Japan (**poster:** Long-term periodicities in the Be X-ray binary EXO 2030+375?)

October 2015: *INTEGRAL: The New High Energy Sky after a Decade of Discoveries*, Rome, Italy

Workshops

October 2019: Yukawa International workshop *Neutron stars and black holes with gravitational waves* at the Yukawa Institute for Theoretical Physics, Kyoto, Japan (**poster:** The size of stars stripped in massive binaries and its impact on gravitational wave events)

September 2018: *Triple Evolution and Dynamics Trendy-2*, Lorentz Centre, Leiden, The Netherlands

July 2018: *Transients in New Surveys: the Undiscovered Country*, Lorentz Centre, Leiden, The Netherlands

March 2018: *BlackGEM* in Nijmegen, The Netherlands

December 2017: *11th Bonn workshop on neutron stars*, Bonn, Germany

Outreach

Volunteer for outreach in astronomy at API, NL during stargazing events, 2017 – present

Volunteer for outreach in astronomy at the IAAT, Tübingen, Germany, 2014 – 2017 Co-organiser of outreach and stargazing events, school visits and "Kinder-Uni" (Children's day)

Computing skills

Web development: HTML, CSS, JavaScript, PHP

Software development: PYTHON, FORTRAN, C, C++, SCHEME (Racket), QML

Graphics: Inkscape, Blender 3D

Astrophysics codes: Modules for Experiments in Stellar Astrophysics (MESA), SuperNova Explosion Code (SNEC), Modular Open Source Fitter for Transients (MOSFiT)

Languages

French: Bilingual native speaker

Spanish: Good command

German: Bilingual native speaker

Dutch: Good command

English: Fluent, [Duolingo Test Center, 2015](#)

Japanese: Basic communication skills

PUBLICATION LIST

Refereed publications

[2020]: L. A. C. van Son; S. E. de Mink; F. S. Broekgaarden; M. Renzo; S. Justham; **E. Laplace**; J. Moran-Fraile; D. D. Hendriks; R. Farmer; [ApJ 897, 100V](#); *Polluting the pair-instability mass gap for binary black holes through super-Eddington accretion in isolated binaries*

[2020]: **E. Laplace**, Y. Götzberg, S. de Mink, S. Justham, and R. Farmer; [A&A, 637, A6](#); *The expansion of stripped-envelope stars: Consequences for supernovae and gravitational-wave progenitors*

[2019]: M. Renzo et al. (with **E. Laplace**) [MNRASL, 482 \(1\): L102-L106](#); *Space astrometry of the very massive $\sim 150M_{\odot}$ candidate runaway star VFTS682*

[2017]: **E. Laplace**; T. Mihara; Y. Moritani; M. Nakajima; T. Takagi; K. Makishima; A. Santangelo; [A&A, 597, A124](#); *Possible regular phenomena in EXO 2030+375*

[2015]: K. A. Postnov; M. I. Gornostaev; D. Klochkov; **E. Laplace**; V. V. Lukin; N. I. Shakura; [MNRAS 452 \(2\): 1601-1611](#); *On the dependence of the X-ray continuum variations with luminosity in accreting X-ray pulsars*

Astronomer's Telegram

[2016]: [#10616](#); **E. Laplace**; M. Nakajima; T. Mihara; Y. Moritani; A. Santangelo *MAXI/GSC detection of a brightening of GRO J1008-57*

[2016]: [#9263](#); **E. Laplace**; T. Mihara; T. Takagi; Y. Moritani; M. Nakajima; K. Makishima; A. Santangelo *Orbital phase shift in a new type I outburst of the Be/X-ray binary EXO 2030+375*

[2015]: [#6917](#); P. Kretschmar; E. Salazar; **E. Laplace**; C. A. Wilson-Hodge; R. E. Rothschild; I. Kreykenbohm; M. Kuehnel; T. Mihara and M. Nakajima; *Bright apastron outburst of GRO J1008-57*

[2014]: [#6656](#); M. Kuehnel et al. (with **E. Laplace**) *Swift-XRT spectrum of the first detected double-peaked outburst of GRO J1008-57*

In preparation

[2020]: D. Vartanyan; **E. Laplace**; M. Renzo; Y. Götzberg; A. Burrows; S. E. de Mink *Stripped binary stars as core-collapse supernovae progenitors*

– To be submitted in < 1 month

[2020]: **E. Laplace** et al.

How being single or in a couple affects the death of massive stars

– To be submitted in < 1 month

[2020]: R. Farmer; **E. Laplace** et al.

The differences in supernova nucleosynthesis from single and stripped binary star progenitors

– To be submitted in < 3 months

References

Prof. Selma de Mink

Associate professor in astrophysics,
selma.de_mink@cfa.harvard.edu
Center for Astrophysics, Harvard-Smithsonian,
60 Garden Street,
Cambridge, MA 02138, USA

Prof. Stephen Justham

Senior research associate
S.Justham@uva.nl
Anton Pannekoek Institute of Astronomy,
University of Amsterdam, Science Park 904,
1098 XH Amsterdam, The Netherlands

Prof. Takashi Moriya

Assistant professor in astrophysics
takashi.moriya@nao.ac.jp
National Institutes of Natural Sciences
National Astronomical Observatory of Japan
2 Chome-21-1 Osawa, Mitaka,
Tokyo 181-0015, Japan

Prof. Maryam Modjaz

Associate professor in astrophysics
mmodjaz@gmail.com
Center for Cosmology and Particle Physics
New York University
726 Broadway, Office 1044
New York, NY 10003, USA

Dr. Peter Kretschmar

Mission manager of Integral
peter.kretschmar@esa.int
European Space Astronomy Centre
Urbanizacion Villafranca del Castillo
Villanueva de la Cañada
28692 Madrid, Spain

Prof. Andrea Santangelo

Head of the high energy astrophysics group
andrea.santangelo@uni-tuebingen.de
Abteilung Hochenergieastrophysik
Institut für Astronomie und Astrophysik
Sand 1,
72076 Tübingen, Germany