

# GEMMA GONZÁLEZ-TORÀ

Curriculum Vitae

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*Born:* 10.04.1994

## EDUCATION

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**PhD studentship** 2021-present  
*European Southern Observatory (ESO), Garching*

**PhD candidate in Astrophysics** 2019-present  
*Astrophysics Research Institute (ARI), LJMU*

**MSc. in Astronomy and Astrophysics**  
**Astromundus**  
**(Erasmus Mundus Joint Master Degree in Astronomy and Astrophysics)** 2017-2019  
*Innsbruck Universität*  
*Università Degli Studi Roma Tor Vergata*  
*Georg-August Universität Göttingen*

**BSc. in Physics, mention in Theoretical Physics** 2012-2017  
*Universitat de Barcelona*  
Including an exchange year at École Polytechnique Fédéral de Lausanne (EPFL)

## SCHOLARSHIPS AND HONOURS

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**IAU travel grant** 2022  
*International Astronomical Union*  
Travel grant for the General Assembly in Busan, South Korea

**IAU travel grant** 2022  
*International Astronomical Union*  
Travel grant for IAUS 361: Massive Stars Near & Far in Ireland

**ESO studentship** 2021-2023  
*European Southern Observatory (ESO)*  
Fully-funded doctoral studentship for 2 years.

**LJMU scholarship** 2019-2022  
*Liverpool John Moores University*  
Fully-funded doctoral scholarship for 3 years (last year halted due to moving at ESO).

**E+:EMJMD Consortium Student scholarship** 2017-2019  
*European Union and Consortium Universities*

Fully-funded Master Program scholarship for program-country students.

**Swiss Government scholarship** 2015-2016  
*Switzerland*

For exchange year students in Switzerland.

**MOBINT scholarship** 2015-2016  
*Generalitat de Catalunya*

For selected exchange year students.

**Excellence winner scholarship** 2012  
*Generalitat de Catalunya*

First University year fully-funded scholarship for Honours prize in high school.

## PROPOSALS

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**PI in 110.23P1** 2022  
*Accepted*

The impact of the chromosphere temperature profile for extended atmospheres of red supergiants.

**Co-PI in 109.231U** 2022  
*In process*

The impact of winds on spatially extended molecular layers of red supergiants *PI: Markus Wittkowski*

**Co-PI in 108.221K** 2022  
*Terminated: 27 h*

The most recent mass-loss history of the red supergiant VY CMa *PI: Markus Wittkowski*

## RESEARCH EXPERIENCE

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**The effect of winds on spatially extended atmospheres of red supergiants** 2021-present  
*European Southern Observatory (ESO), Garching*  
*Astrophysics Research Institute (ARI), Liverpool*

Adding the contribution of a stellar wind to a MARCS model atmospheres to accurately reproduce interferometric data of red supergiants using VLTI/MATISSE, GRAVITY and AMBER. *Supervisors: Markus Wittkowski, Ben Davies.*

**The age of Westerlund 1** 2021-present  
*Astrophysics Research Institute (ARI), Liverpool*

Using photometric data from VLT/NACO and GAIA DR3, we determine the faint stars belonging to the young stellar cluster Westerlund 1, and compare with evolutionary tracks to better constrain the cluster age. *Supervisors: Ben Davies.*

**Red supergiants in low metallicity environments** 2019-2021  
*Astrophysics Research Institute (ARI), Liverpool*

Spectrophotometry analysis of effective temperatures and extinctions on red supergiants in different metallicity environments. Synthetic population using Geneva evolutionary tracks. *Supervisors:* Ben Davies.

**Quantitative spectroscopy of blue supergiants in NGC 300** 2018-2019

*Georg-August-Universität Göttingen, Göttingen*

*Innsbruck Universität, Innsbruck*

Master thesis. Our goal was the determination of stellar parameters in B/A-type supergiants in the NGC 300 galaxy using MUSE data cubes. *Supervisors:* Stefan Dreizler, Norbert Przybilla, Martin M. Roth, Miguel A. Urbaneja.

**Statistical analysis of the direction of the tail of GASP  
ram-pressure stripped galaxies** 2018

*INAF, Padova*

Summer intern with GASP group in INAF Padova. Our main goal was to find a correlation between the tail direction and the direction to the cluster center for each candidate, analyzing possible deviations. *Supervisors:* Bianca Poggianti, Marco Gullieuszik.

**Bose-Einstein condensates in a disordered potential: Anderson localization** 2017

*Universitat de Barcelona, Spain*

Bachelor thesis. Simulating Anderson Localization under a disordered potential for a Bose-Einstein condensate in both 1D and 2D simulations. *Supervisors:* Ricardo Mayol, Montserrat Guilleumas.

## WORK EXPERIENCE

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**Scientific Assistant for the OPC P110 C4 Panel** 2022

*European Southern Observatory*

**Reviewer for the ESO P110 proposals at the Distributed Peer Review (DPR)** 2022

*European Southern Observatory*

**Teaching Assistant Stellar Physics** 2021

*University of Liverpool*

*Lecturer:* Ben Davies

**Teaching Assistant Practical Astrophysics I** 2020

*University of Liverpool*

*Lecturer:* Chris Copperwheat

## CONFERENCES AND ORAL PRESENTATIONS

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**Contributed talk "The effect of winds in red supergiants: modeling for interferometry"**

2022

*IAUS 370: Winds of Stars and Exoplanets, Busan, South Korea*

**Contributed talk "MUSE 3D spectroscopy of BA-type supergiants in NGC 300"**

2022

*IAUS 361: Massive Stars Near & Far, Cavan, Ireland*

**Poster presentation "Extended atmosphere modelization for Red Supergiants: First results for the VLTI"** 2022

*The Sharpest Eyes on the Sky workshop, Exeter, UK*

**Seminar talk "The effect of winds on spatially extended atmospheres of Red supergiants I. Modeling for interferometric observations"** 2022

*Friday Research Talks, ARI*

**Outreach talk "Red Supergiants and the curious case of Betelgeuse"** 2022

*Sabadell, Spain*

**Virtual flash talk "Red supergiants in low Z environments"** 2021

*GAPS 2021*

**Virtual oral presentation "Red supergiants in low Z environments"** 2021

*S16: Massive stars: birth, rotation, and chemical evolution, EAS 2021*

**Seminar talk "The temperatures of red supergiants in low Z environments"** 2021

*Friday Research Talks, ARI*

**Virtual talk "Spectroscopy of NGC 300 B/A-type supergiants with MUSE"** 2020

*BlueMUSE workshop*

**Seminar talk "Spectroscopy of blue supergiants in NGC 300 with MUSE"** 2020

*AIP Postdam, Germany*

**Poster talk "Mineral mine detection with drones in Astro-ecology"** 2019

*MineXchange conference, Aberystwyth University*

**2nd prize for best poster talk "Quantitative spectroscopy of A/B-type supergiants in NGC 300 with MUSE"** 2019

*Petnica, Serbia*

**Outreach talk "The XXX International Astronomical Union general assembly: Highlights and conclusions"** 2019

*Sabadell, Spain*

**Poster talk "Emission lines in Be stars"** 2019

*Göttingen, Germany*

<b>Volunteer at IAU General Assembly</b> <i>Vienna, Austria</i>	2018
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<b>Seminar talk on Bose-Einstein condensates and Anderson localization</b> <i>Barcelona, Spain</i>	2017
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## OTHERS

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- Participant at the International School of Astrophysics "Life and Death: from stars to compact objects", 2022 Asiago, Italy.
- Student representative at ESO Garching during the 2021-2023 academic years.
- Organizer of Informal Discussions at ESO Garching for the 2021-2023 academic years.
- Organizer of talks by PhD students in Liverpool John Moores University for the 2020-2021 academic year.

## LANGUAGES

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**Catalan** (*mother tongue*), **Spanish** (*native*), **English** (*fluent, C2*) **French** (*B2*), **German**, (*B2*)