



Sébastien MARTINET

10/07/1996

French

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www.unige.ch/sebastien-martinet

Scientific interests

- Massive Stellar Evolution
- Very Massive Stars
- Nucleosynthesis
- First stars

Education

2018-2022 PhD in Astrophysics

University of Geneva
Switzerland

2018. Master in Astrophysics

Université Grenoble-Alpes
France

2016. Bachelor Fundamental Physics

Université Pierre et Marie
Curie, Paris VI
France

Current situation

Sept. 2018 – Aug. 2022. **Doctorate in Stellar Astrophysics**

University of Geneva

PhD student in stellar astrophysics at the Geneva Observatory supervised by Prof. Georges Meynet and Dr. Sylvia Ekström.

The goal of the thesis is to study the evolution of the most massive stars, their characteristic nucleosynthesis, their peculiar final fate and their potential contribution to chemical, dynamical and radiative feedback across the cosmic time.

Publications

Martinet, S. et al. (**submitted 2022**) Very massive stars winds as sources of the short-lived ^{26}Al radioactive isotope.

Monribat, E. Martinet, S. et al. (**accepted, 2022**) A new $^{12}\text{C} + ^{12}\text{C}$ nuclear reaction rate: impact on stellar evolution
doi: [2021arXiv211115224M](https://doi.org/2021arXiv211115224M)

Martinet, S. et al. (**2021**) Convective core sizes in rotating massive stars. I. Constraints from solar metallicity OB field stars.
doi: [2021A&A...648A.126Mt](https://doi.org/2021A&A...648A.126Mt)

Murphy, L., ..., Martinet, S. et al. (**2021**) Ionizing photon production of Population III stars: effects of rotation, convection, and initial mass function.
doi: [2021MNRAS.506.5731M](https://doi.org/2021MNRAS.506.5731M)

Murphy, L., ..., Martinet, S. et al. (**2021**) Grids of stellar models with rotation - V. Models from 1.7 to $120M_{\odot}$ at zero metallicity.
doi: [2021MNRAS.501.2745M](https://doi.org/2021MNRAS.501.2745M)

Eggenberger, P., ..., Martinet, S. et al. (**2021**) Grids of stellar models with rotation. VI. Models from 0.8 to $120M_{\odot}$ at a metallicity $Z = 0.006$. doi: [2021A&A...652A.137E](https://doi.org/2021A&A...652A.137E)

Martinet, S., Monier, R. (**2021**) Hyperfine Structure and Abundances of Heavy Elements in 68 Tauri (HD 27962).
doi: [2017sf2a.conf...61M](https://doi.org/2017sf2a.conf...61M)

Numerical tools

Fortran ●●●●
Python ●●●○
IDL/C/C++ ●●○○

Languages

English ●●●●
French (native) ●●●●
Spanish ●●○○

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Scientific outreach

- Leading public visits for the Geneva Observatory
- Public observations at the Geneva Observatory
- Participation to vulgarization events (*e.g.* European Heritage Days, Open Days, Night for Astronomy)
- Job fairs to promote Astronomy and Astrophysics

Honours and Awards

2021. MERAC Funding and Travel Awards - Swiss Society of Astronomy and Astrophysics (SSAA)

Grant to visit Prof. Carla Frölich in NCSU, USA for a 3-weeks collaboration.

2019. Short term scientific mission - ChETEC COST ACTION

Grant to visit Prof. Raphael Hirschi in Keele University, UK.

Conferences and Seminars

Nov. 2021: XXth Nuclear Astrophysics Workshop on Ringberg Castle / Germany

Selected talk, about 'Short-lived nuclei in very massive stars'

May 2021: International Astronomical Union Symposium 361: Massive Stars Near & Far / Ireland

Selected talk, about 'Rotating (P)PISNe progenitors at very low and solar metallicity'

Sept. 2019: Stars as Probes of First-Star Nucleosynthesis, the IMF, and Galactic Assembly / Geneva, Switzerland

Invited Speaker, talking about "Mechanical Mass loss for fast rotating Population III stars"

Hobbies and Interests

Competitive sports: **Boxing**

Vice champion of Île-de-France 2017. Participation to the French boxing championship 2017.

Other sports: **Rugby, Judo**

2011-Current **Guitarist**

2005-Current **Drummer**

Played for lots of different bands (Classic Orchestra, jazz band, rock band, funk band, ...).

2019-Current **Pianist**

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Relevant experience

Lectures given:

- 2020-2022, Stellar evolution for master and PhD students, University of Geneva, Switzerland

Observing proposals accepted:

- "Mind the gaps: a massive connection between IACOB and stellar evolution (with the aid of Gaia, TESS, and WEAVE-SCIP)", Co-I, on NOT and MERCATOR, using FIES and HERMES, 60 nights awarded (45-MULTIPLE-8/21B)

Observing nights:

- 2017, Observatoire de Haute-Provence, France, 5 nights
- 2017, IRAM 30m, Spain (Herbig Haro jets studies, 30h observations in CO(1-0) and CO(2-1))
- 2022, NOT and MERCATOR, Spain, planned observations for the 45-MULTIPLE-8/21B proposal

Internship:

- 2018, Ionizing Photons Escape in High Redshifts Galaxies, Prof. Daniel Schaerer, Geneva University
- 2017, Hyperfine Structure and Abundances of Heavy Elements in 68 Tauri, Prof. Richar Monier, Meudon Observatory
- 2016, Hubble-Lemaître Constant using SN1a, Prof. Anne-Laure Melchior, Paris Observatory

Last updated: January, 2022.