



# Sébastien Martinet

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## ● WORK EXPERIENCE

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03/09/2018 – CURRENT – Geneva, Switzerland

**DOCTORATE IN STELLAR ASTROPHYSICS – GENEVA UNIVERSITY**

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

The goal of the thesis is to study the evolution of the most massive stars and how their different evolution will lead to very different final fate, when exploding into Supernovae.

03/09/2018 – CURRENT – GENEVA, Switzerland

**ASSISTANT RESEARCHER – GENEVA UNIVERSITY**

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Giving lectures to master and PhD students on Stellar Evolution.

Leading public visits and public observations for the Observatory of Geneva.

01/03/2018 – 30/06/2018 – GENEVA, Switzerland

**INTERNSHIP - IONIZING PHOTONS ESCAPE IN HIGH REDSHIFTS GALAXIES – GENEVA UNIVERSITY**

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Supervisor: Prof. Daniel Schaerer

Integrated spectrum modelisation of galaxies using the stellar population code Starburst99. Constraints on ISM column densities, dynamics and porosity to study the ionizing photons escape fraction. The galaxies spectrum were observed by the VANDELS survey on the VLT for redshift above  $z=3$  with up to 80 hours per target.

01/04/2017 – 30/06/2017 – Paris, France

**INTERNSHIP - HYPERFINE STRUCTURE AND ABUNDANCES OF HEAVY ELEMENTS IN 68 TAURI – MEUDON OBSERVATORY**

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Supervisor: Prof. Richard Monier | LESIA

HD 27962, also known as 68 Tauri, is a Chemically Peculiar Am star member of the Hyades Open Cluster in the local arm of the Galaxy. We have modeled the high resolution SOPHIE ( $R=75000$ ) spectrum of 68 Tauri using updated model atmosphere and spectrum synthesis to derive chemical abundances in its atmosphere. In particular, we have studied the effect of the inclusion of Hyperfine Structure of various Baryum isotopes on the determination of the Baryum abundance in 68 Tauri. We have also derived new abundances using updated accurate atomic parameters retrieved from the NIST database.

01/01/2015 – 31/01/2015 – Paris, France

**INTERNSHIP - HUBBLE-LEMAÎTRE CONSTANT USING SN1A – PARIS OBSERVATORY**

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Supervisor: Prof. Anne-Laure Melchior | LERMA

Determination of the current Hubble-Lemaître constant using supernovae observations.

## ● EDUCATION AND TRAINING

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01/09/2017 – 30/06/2018 – Grenoble, France

**MASTER 2ND YEAR: ASTROPHYSICS** – Université Grenoble-Alpes

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Lectures: MHD, Radiative Transfer, Disks, Planetology, High energy astrophysics, High angular resolution, Interferometry, Gravity and Galaxies dynamics, ISM

- 1 week observations: Observatoire de Haute-Provence (Observations, detectors studies, a posteriori treatment (Bayesian approach))

- 1 week observations : IRAM 30m, Spain (Herbig Haro jets studies , 30h observations in CO(1-0) and CO(2-1))

01/09/2016 – 30/06/2017 – Paris, France

**MASTER 1ST YEAR: GENERAL PHYSICS** – Université Pierre et Marie Curie, Paris VI

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Option Plasma

01/09/2013 – 30/06/2016 – Paris, France

**BACHELOR: FUNDAMENTAL PHYSICS** – Université Pierre et Marie Curie, Paris VI

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Bachelor project (Thermodynamics): studies and probes of instabilities and particles velocity power law in the Rayleigh-Bénard and Bénard-Marangoni cells.

## ● LANGUAGE SKILLS

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**Mother tongue(s):** FRENCH

**Other language(s):**

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
<b>SPANISH</b>	A2	B1	A2	A2	B1
<b>ENGLISH</b>	C2	C2	C1	C2	C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

## ● DIGITAL SKILLS

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Python | Git | Linux | C++ | Fortran | Windows | LaTeX | Microsoft Office | IDL | Matlab | C

## ● PUBLICATIONS

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**Convective core sizes in rotating massive stars. I. Constraints from solar metallicity OB field stars**

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<https://ui.adsabs.harvard.edu/abs/2021A%26A...648A.126M/abstract> – 2021

**Ionizing photon production of Population III stars: effects of rotation, convection, and initial mass function**

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<https://ui.adsabs.harvard.edu/abs/2021MNRAS.506.5731M/abstract> – 2021

**Grids of stellar models with rotation - V. Models from 1.7 to 120 M $\odot$  at zero metallicity**

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<https://ui.adsabs.harvard.edu/abs/2021MNRAS.501.2745M/abstract> – 2021

**Grids of stellar models with rotation. VI. Models from 0.8 to 120M $\odot$  at a metallicity Z = 0.006**

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<https://ui.adsabs.harvard.edu/abs/2021A%26A...652A.137E/abstract> – 2021

<https://ui.adsabs.harvard.edu/abs/2017sf2a.conf...61M/abstract> – 2017

## ● DRIVING LICENCE

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Driving Licence: B

## ● CONFERENCES AND SEMINARS

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09/09/2019 – 13/09/2019 – Geneva, Switzerland

**Stars as Probes of First-Star Nucleosynthesis, the IMF, and Galactic Assembly**

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

03/05/2021 – 07/05/2021 – Ireland

**International Astronomical Union Symposium 361: Massive Stars Near & Far**

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

01/11/2021 – 07/11/2021 – Germany

**XXth Nuclear Astrophysics Workshop on Ringberg Castle**

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

## ● HONOURS AND AWARDS

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2019

**Short term scientific mission – ChETEC COST ACTION**

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

2020

**MERAC Funding and Travel Awards – Swiss Society of Astronomy and Astrophysics (SSAA)**

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

## ● HOBBIES AND INTERESTS

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### Boxing

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Vice champion of Île-de-France 2017.

Participation to the French boxing championship 2017.

### Rugby

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### Judo

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### Biology

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Learning bachelor-level biology on my off-time.

## ● CREATIVE WORKS

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01/09/2011 – CURRENT

**Guitarist**

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01/09/2005 – CURRENT

**Drummer**

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

01/09/2019 – CURRENT

**Pianist**

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