



# Julia M. T. Roquette

PH.D IN PHYSICS · ASTROPHYSICIST

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## Languages

### Portuguese

Mother Tongue

### English

Comprehends ☐ Speaks ☐  
Reads ☐ Writes ☐

### French

Comprehends ☐ Speaks ☐  
Reads ☐ Writes ☐

## Computer Skills

### Operating Systems:

Mac OS X, Linux,

### Programming Language

Python ☐ IDL ☐

### Software for Data Analysis:

TOPCAT ☐ R ☐  
AstrOmatic.net ☐ Excel ☐  
Origin Lab ☐ IRAF ☐

### Software for Document Compilation:

LaTeX ☐ MS Word ☐

### Other:

GIMP ☐ HTML ☐  
Bash ☐ JavaScript ☐

## Current position

June 2018 - Present **Research Fellow**

as part of the ERC project AWESoMeStars

University of Exeter

UNITED KINGDOM

## Previous professional experience

Nov. 2017 - May 2018 **Substitute Lecturer\***

Universidade Federal de Sergipe (UFS)

BRAZIL

**\*Note on Research Career Break:** I was employed under a full-time teaching contract with no prescribed time for research. I had a research career break between May 2017 and May 2018.

## Education

Mar. 2013 - Apr. 2017 **PhD in Physics**

Universidade Federal de Minas Gerais (UFMG)

Advisor: Dr. Sílvia H. Paixao Alencar

BRAZIL

Title: *Variability and Rotation of Young Low Mass Stars: The Case of Cygnus OB2 Association*

Apr. 2015 - Mar. 2016 **Visiting PhD student**

Institut de Planetologie et d'Astrophysique de

Advisor: Dr. Jerome Bouvier

Grenoble (IPAG) FRANCE

Aug. 2011 - Feb. 2013 **Master's in Physics**

Universidade Federal de Minas Gerais (UFMG)

Advisor: Dr. Luiz Paulo Ribeiro Vaz

BRAZIL

Title: *"Levantamento Fotométrico nas Bandas J, H e K de Estrelas Variáveis na Região Central de Cygnus OB2" (JHK Survey of Photometric Variability in the center of Cygnus OB2)*

Mar. 2007 - Jul. 2011 **Bachelor in Physics**

Universidade Federal de Minas Gerais (UFMG)

Physics Department of UFMG, Brazil

BRAZIL

## Undergraduate research experience

May 2008 to Jul 2011 **Scientific Initiation intern at the Laboratory of Astrophysics**

Project Title: "Photometric Variability of Young Stars" - Supervisor: Dr. Luiz Paulo R Vaz

UFMG, BRAZIL

Aug 2007 to Apr 2008 **Scientific Initiation intern at the Laboratory of Semiconductors**

Project Title: "Study of Photoluminescence and Electroluminescence of Conjugate Polymers" - Supervisor: Dr. Luiz Alberto Cury

UFMG, BRAZIL

## Scientific programs approved as Principal Investigator

Telescope: **ESO**  
**VIRCAM/VISTA** A Census of Rotation and Variability in the Carina Nebula Complex

Code: 105.20LT observing time: 24.52h

Telescope: **CFHT/WIRCAM** Testing environmental effects during early rotational evolution of low mass stars: evaluation of the rotational scenario in the OB association CygOB2

Code: 17AF17 observing time: 9.96h

## Conferences and Schools attended

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### TALKS IN CONFERENCES

#### ***Does the environment matter? Investigating the spin rates of low mass stars in the young Cygnus OB2 associations***

23-26 September 2019 Thinkshop 16 - The rotation periods of cool stars: Measurements, uses, connections and prospects - - Potsdam, Germany

#### ***Near-infrared variability and rotation of young low-mass stars in Cygnus OB2: a tale on the environmental influence on the early stellar evolution?***

31st Jan. 2018 Star Formation and Young Stars in Cygnus, Keele University, UK,

#### ***Near-Infrared Variability of Disk-bearing Stars in Cygnus OB2***

24 Aug. 2016 Star Formation 2016, Early-career session, Exeter, UK

### POSTER PRESENTATIONS

#### **The rotation of low mass stars at 30 Myr in the cluster NGC 3766**

30 Jun - 6 Jul, 2019 IAU Symposium 354: Solar and Stellar Magnetic Fields: Origins and Manifestations - Copiapo, Chile

#### ***Does environment matter? The rotational scenario of low mass stars in the young Cygnus OB2 association***

04-08 Sep. 2017 XLI Annual meeting of Brazilian Society of Astronomy, São Paulo, Brazil, Stars and Solar Physics Session.

#### ***Near-Infrared Variability of Disk-bearing Stars in Cygnus OB2***

21-26 Aug. 2016 Star Formation 2016, Exeter, UK, Discs session.

#### ***Time-series JHK Photometry of Stars in the Center of Cygnus OB2***

21-26 Nov. 2013 400 Years of Stellar Rotation, Natal, Brazil

#### ***Time-series JHK Photometry of Stars in the center of Cygnus OB2***

25-30 Nov. 2013 XIV Latin American Regional IAU Meeting, Florianopolis, Brazil

5+ poster presentations at the XXXVIII, XVII and XXXV Annual meeting of Brazilian Society of Astronomy in 2014, 2012, and 2010, and at the XVIII and XIX Week of Scientific Initiation of UFMG in 2009 and 2010

### CONFERENCE ATTENDED WITHOUT PRESENTATION

#### ***1-4 Dec 2020 The Magnetic Field Awakens - A New Era for Star Formation***

online conference

#### ***9-11 July 2019 Eighth BCool workshop***

Exeter, UK

#### ***29-31 August 2018 Star Cluster Formation: Mapping the first few Myrs***

Grenoble, France

Other previous conferences: XXVIIth IAU General Assembly ( Rio de Janeiro, Brazil, 7-12 Sep. 2010)

### SCHOOLS

#### ***6-11 Oct. 2019 School of Astrostatistics 2019: Variability and Time Series Analysis***

Autrans, France

#### ***11-16 Oct. 2015 School of Astrostatistics 2015: Clustering and Classification***

Les Houches, France

1+ previous schools: XXI Winter School on Physics (Physics Department of UFMG - Belo Horizonte, Brazil, 12-16 Jul 2010)

## Grants & Fellowships

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#### **CNPq Sandwich Scholarship for one year as visiting PhD Student Abroad ( CNPq/SWD)**

2015

GRANTED BY THE BRAZILIAN NATIONAL COUNCIL FOR SCIENTIFIC AND TECHNOLOGICAL DEVELOPMENT

€20,000

Project Title: *Cygnus OB2 Association: Study about Low Mass Star Rotation* - Duration: 1 year

#### **PhD Scholarship (CNPq/GD) for a 4 years PhD at the Physics Department of the UFMG**

2013

GRANTED BY THE BRAZILIAN NATIONAL COUNCIL FOR SCIENTIFIC AND TECHNOLOGICAL DEVELOPMENT

R\$125, 512

Title of the project: Title: *Variability and Rotation of Young Low Mass Stars: The Case of Cygnus OB2 Association*

\*I had the 2nd best grade in the Physics Exams for the selection of PhD Students

## Master Scholarship (CNPq/GM) for a 2 years MSc at the Physics Department of the UFMG

2011

GRANTED BY THE BRAZILIAN NATIONAL COUNCIL FOR SCIENTIFIC AND TECHNOLOGICAL DEVELOPMENT

R\$28, 800

Title of the project: Title: *JHK Survey of Photometric Variability in Cygnus OB2*

\*I had the 1st best grade in the Physics Exams for the selection of Master Students

## 3 Scientific Initiation Scholarships (3 years: 1 FAPEMIG/PROBIC and 2 CNPq/PIBIC )

2008, 2009, 2010

GRANTED BY THE FOUNDATION FOR RESEARCH SUPPORT OF THE STATE OF MINAS GERAIS (1 YEAR AND BY THE BRAZILIAN NATIONAL COUNCIL FOR SCIENTIFIC AND TECHNOLOGICAL DEVELOPMENT (2 YEARS)

total: R\$14, 400

Project Title: "*Photometric Variability of Stars in Cygnus OB2*"

Funds for 12h/week undergraduate research at the Laboratory of Astrophysics of UFMG.

## Scientific Initiation Scholarship (10month, CNPq/PIBIC)

2007

GRANTED BY THE BRAZILIAN NATIONAL COUNCIL FOR SCIENTIFIC AND TECHNOLOGICAL DEVELOPMENT

R\$3, 240

Project Title: "*Study of Photoluminescence and Electroluminescence of Conjugate Polymers*"

Funds for 12h/week undergraduate research at the Laboratory of Semiconductors of UFMG

## Other Academic Activities

### 21th Feb 2018 Panel of Examiners of 2 BSc undergraduate thesis on the topic of cosmology

At the Federal University of Sergipe, Brazil

### Apr. 2016 - Apr. 2017 Board Member of the PRISMA - LGBTQ ICEx

University Student Collective for LGBTQ Rights at Exact Sciences Institute - UFMG

### Aug. 2012 - Jul. 2014 Student representative at the Physics Department Graduate Commission

Physics Department - UFMG

### May 2010 - Apr. 2011 Vice President of the Physics Students Association (Diretório Acadêmico da Física)

Exact Sciences Institute (ICEx) - UFMG

## Teaching, Mentoring and Outreach

### TEACHING

#### Telescope demonstrator (night time)

Oct 2019 to

AT THE UNIVERSITY OF EXETER, UK

Feb 2020

SUPERVISED STUDENTS DURING NIGHT-TIME OBSERVATIONS AT THE PHYSICS DEPARTMENT'S 14-INCH TELESCOPE AS PART OF THE DEVELOPMENT OF THE ASTROPHYSICS EXPERIMENTS OF PRACTICAL PHYSICS II

(English)

Duties:

- every observing night, I initiated the telescope and obtained flat and bias images
- Guided the students in the operation of the telescope and production of observational logs

#### "Python for Dummies" workshop

19th April 2018

AT THE INSTITUT DE PLANETOLOGIE ET D'ASTROPHYSIQUE DE GRENOBLE, FRANCE

gave an introductory workshop on Python (2h) for researchers and PhD students with previous experience in programming in other languages

(English)

#### Full time Lecturer in Physics and Astrophysics

Nov 2017 to

AT THE PHYSICS DEPARTMENT OF THE FEDERAL UNIVERSITY OF SERGIPE, BRAZIL

May 2018

I TAUGHT THE THREE FOLLOWING UNDERGRADUATE MODULES:

(Portuguese)

- ASTROBIOLOGY (60H): MODERN TOPICS IN THE FIELD OF ASTROBIOLOGY
- LABORATORY OF ASTRONOMY AND ASTROPHYSICS (60H): COMPUTATIONAL TOOLS FOR THE ANALYSIS OF ASTRONOMICAL DATA. PYTHON, ASTROPY, VIRTUAL OBSERVATORY TOOLS, TOPCAT, ETC
- LABORATORY OF PHYSICS I (2×30H) PRACTICAL PHYSICS LAB WITH EXPERIMENTS ON THE SUBJECTS OF FUNDAMENTAL MECHANICS AND THERMODYNAMICS

As part of my lectureship, my responsibilities included preparing and delivering lectures; tutoring students; preparing, applying and marking exams and homework. For the practical modules, I was both the lecturer and the demonstrator. Line managers: Prof. Dr. Sergio Scarano (scaranojr@ufs.br) and Prof. Ana Maia (afmaia@ufs.br)

#### Part-time Lecturer in Physics

Mar to Apr 2013

AS PART OF THE "MANDATORY TEACHING TRAINING PROGRAM" FOR PHD STUDENTS AT ICEx-UFMG, BRAZIL)

Aug to Sep 2013

TAUGHT THE MODULE FUNDAMENTALS OF SOLID AND FLUID MECHANICS (2×15H)

(Portuguese)

Duties: Preparing and delivering lectures. Tutoring students. Preparing, applying and marking exams and homework. Mentor: Prof. Dr. Ariete Righi (righi@fisica.ufmg.br)

## Demonstrator and Tutor in Physics

OF THE LICENTIATE IN CHEMISTRY AND BIOLOGY PROGRAMS OF THE EAD-UFMG (UFMG E-LEARNING)

AS PART OF THE UNIVERSIDADE ABERTA DO BRASIL (BRAZILIAN OPEN UNIVERSITY)

Role 1: online tutor in the modules of Fundamentals of Mechanics, Fundamentals of Thermodynamics, Fundamentals of Electromagnetism and Fundamentals of Modern Physics. Duties: tutored students online in solving physics problems, marked exams and homework.

Role 2: Demonstrator in the experimental physics labs. Duties: Traveled to remote areas of the estate of Minas Gerais (in Brazil) to deliver (in-person) demonstration of physics labs. Also applied and marked lab homeworks and exams.- Line manager: Prof. Dr. Wagner Conradi

Sep 2013 to

Sep 2014

(Portuguese)

## OTHER TEACHING-RELATED ACTIVITY - LEARNING MATERIALS

### “XXCygni Experiment” Cookbooks of multi-epoch photometry with Python

2019-2021

AT THE UNIVERSITY OF EXETER, I LEAD THE TRANSITION OF THE ASTRONOMY EXPERIMENTS IN THE DISCIPLINE PRACTICAL PHYSICS II FROM IRAF TO PYTHON

University of Exeter, UK

Along with Prof. Sean Matt, we used my Python solution to the experiments to write up Jupyter-Notebooks and Cookbooks provided as learning material for the discipline Practical Physics II.

## MENTORING

### Bachelor Project: “Mapping the interstellar extinction in young clusters”

Oct 2020 to Nov 2020

MENTORED 4 UNDERGRADUATE STUDENTS IN THE DEVELOPMENT OF A RESEARCH PROJECT

University of Exeter, UK

3-month project

### Summer Project: “Investigating the Effect of Massive Stars in the Rotational Scenario of Pre-Main-Sequence Clusters”

Jun 2020 to Sep 2020

MENTORED 1 SUMMER STUDENT IN THE DEVELOPMENT OF A RESEARCH PROJECT

University of Exeter, UK

3-month project

### Summer Project: “Recovering Praesepe’s Spin Distribution at Birth”

Jun 2020 to Sep 2020

CO-SUPERVISED 1 SUMMER STUDENT IN THE DEVELOPMENT OF A RESEARCH PROJECT

University of Exeter, UK

3-month

### Master Project: “Mining stellar spin rates: Do field stars rotate differently in different parts of the the Galaxy? “

Dec 2018 to May 2020

MENTORED 3 MASTER STUDENTS IN THE DEVELOPMENT OF A RESEARCH PROJECT

University of Exeter, UK

18-month

## OUTREACH

28/04/2018

“Por que alguns astrofísicos estão interessados em entender como as estrelas giram?” (“Why are astrophysicists interested in understanding how the stars rotate?”)

Gave a talk to the general public during an outreach event of SEASE Astronomia in Aracaju, Brazil

## Outside Academia Interests

🚴 cycling, 🛠️ Bike-mechanics, 🧀 Cheesemaking, 🧗 Climbing, 🧩 Puzzles of Art, 📖 Sci-Fi, 📚 Literature, 📖 Comic Books, 🎬 Cinema, 🧗 Hiking, 🧳 Traveling, 💻 Computers, 🧵 T-shirt Design

### Bike Mechanic Volunteer at the Ride On Cycling for All

June 2020 - Present

IN MY FREE TIME, I AM A BIKE MECHANICS VOLUNTEER AT THE RIDE ON ([HTTPS://WWW.RIDEONCYCLING.ORG/](https://www.rideoncycling.org/)),

Exeter, UK

a charity in Exeter that has the goal of helping more and more people to get into cycling. Since June 2020, I helped them service and refurbish more than 20 donated bikes that were put back in circulation.