

Dipartimento di Fisica e Astronomia "Galileo Galilei"  
Università degli Studi di Padova  
Vicolo dell'Osservatorio 3  
35122 Padova (PD), Italy

<https://orcid.org/0000-0002-3122-6809>  
<https://vsquicciarini.github.io/>  
Email: [vito.squicciarini@phd.unipd.it](mailto:vito.squicciarini@phd.unipd.it)  
Twitter: [@AstroVito11](https://twitter.com/AstroVito11)

## EMPLOYMENT HISTORY

### Current Position

2019 - Present\*                      PhD Student    Università degli Studi di Padova  
\*Expected to graduate: September 2022

## EDUCATION

2017-2019    Master in Astronomy    University of Padova, Italy  
2013-2017    Bachelor in Physics            University of Padova, Italy

## RESEARCH

My career so far has been focused on two main paths:

1. studying the occurrence of giant planets around intermediate and massive stars to get insights on their formation mechanisms;
2. assessing the possibility of biotic oxygen build-up in the atmospheres of habitable Earth-like planets.

To achieve these goals I have:

- (a) contributed to data reduction and analysis of the ongoing direct-imaging BEAST survey;
- (b) improved kinematic techniques to indirectly estimate stellar ages of B stars for a better mass determination of directly-imaged exoplanets and brown dwarfs;
- (c) developed a tool, [MADYS](#), bridging stellar evolution models with large catalogues to rapidly turn automatically collected photometric data of stellar samples into mass and age estimates;
- (d) created a model that incorporates experimental evidence of photosynthetic bacteria thriving under the irradiation of M stars within the framework of models of the Earth's oxygenation history.

### Main Research Projects

#### *SpHere INfrared survey for Exoplanets* ([SHINE](#))

Guaranteed time direct-imaging search for exoplanets using the Spectro-Polarimetric High-contrast Exoplanet REsearch ([SPHERE](#)) planet-finder camera at VLT

*Contributions: derivation of masses for the new binary systems discovered in Bonavita et al. (2021).*

#### B-star Exoplanet Abundance Study ([BEAST](#))

Large program searching for exoplanets through the SPHERE planet-finder camera at VLT

*Contributions: data reduction and analysis; confirmation and characterization of candidate companions; age and mass determinations for the stellar host and the confirmed companions; interpretation of the results in the light of the existing models.*

#### Atmospheres in a test tube ([link](#))

Experiment studying the possibility for oxygenic photosynthesis to occur on habitable planets around M stars

*Contributions: development of a toy model assessing the possibility of biotic oxygen buildup for a Earth-like planet orbiting a less massive star than the Sun.*

## LATEST SEMINARS AND TALKS

2022	invited talk	PSF Coffee – Max Planck Institute for Astronomy	Heidelberg, Germany*
2022	contributed talk	The Sharpest Eyes on the Sky	Exeter, UK*
2022	selected speaker	ESO Hypatia Colloquium 2022	Garching, Germany*
2021	contributed talk	ESO Workshop: The Star-Planet Connection	virtual event
2021	contributed talk	From Clouds to Discs: A Tribute to the Career of Lee Hartmann	Dublin, Ireland*
2021	contributed talk	Star Clusters: the Gaia Revolution	Barcelona, Spain*
2021	contributed talk	EPSC 2021 — Europlanet Science Congress 2021	virtual event
2021	contributed talk	AbGradCon 2021 — Astrobiology Graduate Conference	virtual event
2021	invited talk	Journal Club – The Royal Observatory, Edinburgh	Edinburgh, UK*
2021	contributed talk	NASA 2021 Sagan Exoplanet Summer Virtual Workshop	Pasadena, US*
2021	contributed talk	ISM 2021 — Structure, characteristic scales, and star formation	Beirut, Lebanon*
2021	contributed talk	XVI Congresso Nazionale di Scienze Planetarie	Padova, Italy

\* held virtually

## TRAINING AND CAREER DEVELOPMENT

2022	PhD School	Summer School in Astroinformatics II	State College, USA*
2021	workshop	ENGAGE 2021 – Comunicazione e divulgazione della scienza	Venice, Italy
2021	program	The Physics of the Emergence of Life	Garching, Germany
2021	PhD School	RED'21 School — Astrobiology Introductory Course	Le Teich, France*
2021	PhD School	10th VLT School of Interferometry	Sophia-Antipolis, France*
2021	PhD School	Summer School in Statistics for Astronomers XVI	State College, USA*
2021	symposium	IX ELSI International Symposium – Science in Society	Tokyo, Japan*
2020	course	Python Course 2020	Padova, Italy*
2020	workshop	ENGAGE 2020 – Comunicazione e divulgazione della scienza	Pisa, Italy*

\* held virtually

## OUTREACH

2021	panelist	Notte europea dei ricercatori 2021	Padova, Italy
2021	contributed video	Percorsi Galileiani – PhD edition	Padova, Italy

## PUBLICATION RECORD

- 2022** Squicciarini, V. & Bonavita, M., *Introducing MADYS: the Manifold Age Determination for Young Stars*, under review on A&A (preprint: [arXiv:2205.02279](https://arxiv.org/abs/2205.02279))
- 2022** Ray, S., Hinkley, S., Sallum, S., et al., including Squicciarini V., *Detecting planetary mass companions near the water frost-line using JWST interferometry*, under review on MNRAS
- 2022** Squicciarini, V., Gratton, R., Janson, M., et al., *A scaled-up planetary system around a supernova progenitor*, A&A in press, [arXiv:2205.02279](https://arxiv.org/abs/2205.02279)
- 2022** Bonavita, M., Fontanive, C., Gratton, R., et al., including Squicciarini V., *Results from The COPAINS Pilot Survey: four new brown dwarfs and a high companion detection rate for accelerating stars*, [arXiv:2205.02213](https://arxiv.org/abs/2205.02213)
- 2021** Mesa D., Ginski C., Gratton R., et al, including Squicciarini V., *Signs of late infall and possible planet formation around DR Tau using VLT/SPHERE and LBT/LMIRCam*, [arXiv:2111.01702](https://arxiv.org/abs/2111.01702)
- 2021** Janson M., Gratton R., Rodet L., et al, including Squicciarini V., *A wide-orbit giant planet in the high-mass  $\beta$  Centauri binary system*, *Nature*, **600**, 231
- 2021** Squicciarini V., Gratton R., Bonavita M., et al., *Unveiling the star formation history of the Upper Scorpius association through its kinematics*, *MNRAS*, **507**, 1381
- 2021** Mesa D., Marino S., Bonavita M., et al., including Squicciarini V., *Limits on the presence of planets in systems with debris discs: HD 92945 and HD 107146*, *MNRAS*, **503**, 1276

- 2021** Bonavita M., Gratton R., Desidera S., et al., including Squicciarini V., *New binaries from the SHINE survey*, [arXiv,arXiv:2103.13706](#)
- 2021** Janson M., Squicciarini V., Delorme P., et al., *BEAST begins: sample characteristics and survey performance of the B-star Exoplanet Abundance Study*, [A&A,646,A164](#)
- 2021** Squicciarini V., Claudi R., La Rocca N., *Searching for the oxygen footprint of light-harvesting organisms*, [doi: 10.5194/epsc2021-763](#)
- 2021** Claudi R., Alei E., Battistuzzi M., et al., including Squicciarini V., *Super-Earths, M Dwarfs, and Photosynthetic Organisms: Habitability in the Lab*, [Life,11,10](#)
- 2021** Carleo I., Desidera S., Nardiello D., et al., including Squicciarini V., *The GAPS Programme at TNG. XXVIII. A pair of hot-Neptunes orbiting the young star TOI-942*, [A&A,645,A71](#)