



Zingales Tiziano

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WORK EXPERIENCE

 **UNIVERSITY OF PADUYA** – PADOVA, ITALY

FIXED TERM RESEARCHER - ASSISTANT PROFESSOR – 22/12/2023 – CURRENT

Modelling and analysis of **exoplanetary atmospheres**. Development of **Machine Learning** algorithms and multidimensional models integrated into Bayesian analysis methods for the study of exoplanetary atmospheres. Development of **quantum computing** algorithms for the analysis of spectroscopic and photometric data related to the study of exoplanets.

 **UNIVERSITY OF PADUA** – PADOVA, ITALY

ASTROPHYSICS POST DOC RESEARCHER – 01/07/2021 – 21/12/2023

Analysis and modelling of light curves for the **CHEOPS** space mission. Development of **Artificial Intelligence** and **Quantum Computing** algorithms for studying the properties of exoplanets and analysing data from **HST**, **JWST**, and **Ariel**.

 **CNRS - LABORATOIRE D'ASTROPHYSIQUE DE BORDEAUX** – BORDEAUX, FRANCE

ASTROPHYSICS POST DOC RESEARCHER – 01/11/2018 – 30/06/2021

Modelling and analysis of the **atmospheres of extrasolar planets**. Development of **Machine Learning** algorithms and multidimensional models integrated into **Bayesian analysis** methods for the study of exoplanetary atmospheres.

EDUCATION AND TRAINING

31/10/2015 – 30/10/2018 London, United Kingdom

PHD IN PHYSICS AND ASTRONOMY University College of London

Website <https://www.ucl.ac.uk/> | **Field of study** Astrophysics |

Thesis Characterisation of exoplanetary atmospheres: from target selection to feature recognition using deep learning

2013 – 2015 Palermo, Italy

MASTER'S DEGREE IN PHYSICS - CURRICULUM ASTROPHYSICS University of Palermo - Department of Physics

Website <https://www.unipa.it/> | **Field of study** Physics | **Final grade** 110 con lode e menzione |

Thesis Study of exoplanets: Orbital evolution of extrasolar giant planets

2009 – 2013 Palermo, Italy

BACHELOR'S DEGREE IN PHYSICS University of Palermo - Department of Physics

2009 Palermo, Italy

DIPLOME CLASSICAL HIGH SCHOOL Classical High School Umberto I

Website <https://www.umbertoprime.edu.it/>

● **NETWORKS AND MEMBERSHIPS**

2016 – 2018 Londra, GB
Member of Royal Astronomical Society

05/2024 – CURRENT Padova, IT
Member of QTech Padua center

The **QTech Center of Padua** brings together researchers from various disciplines to collaborate on research topics in the field of quantum technologies.

Link <https://qtech.unipd.it/>

● **LANGUAGE SKILLS**

Mother tongue(s): **ITALIANO**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
INGLESE	C1	C1	C1	C1	C1
FRANCESE	B1	B2	A2	A2	A2

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

● **CREATIVE WORKS**

Development of the Astrocoin cryptocurrency prototype.

Creation of a cryptocurrency prototype (*Astrocoin*), with a demo available on my personal [website](#).

Link <http://tizianozingales.com/astrocoin/>

● **SCIENTIFIC RESPONSIBILITIES**

01/2022 – CURRENT
Head of Work Package 3100 (Target Selection) within the CHEOPS Consortium.

Responsible for identifying optimal candidates for the **Explore** and **MR.Improve** programs of the CHEOPS Consortium.

11/2022 – CURRENT
Head of Monitoring and Scientific Production for the TOI-1803 Planetary System within the CHEOPS Consortium.

Responsible for the monitoring and analysis of the **TOI-1803 system** in the **MR.Improve** program of CHEOPS. Serves as the lead scientist and point of contact for the same target within the **GAPS Consortium**, overseeing radial velocity measurements with the **HARPS-N instrument** at the **Telescopio Nazionale Galileo**.

07/2021 – CURRENT
Head of Artificial Intelligence activities within the Exoplanets and Stellar Populations Group (ESPG) at the Department of Physics and Astronomy, University of Padua.

Scientific lead for the application of **Machine Learning algorithms** to exoplanet research within the **Exoplanets and Stellar Populations Group (ESPG)** at the Department of Physics and Astronomy, University of Padua.

● **TEACHING**

01/10/2024 – CURRENT
Lecturer of the “Computational Astrophysics” course in the “Physics of Data” degree program.

Teaching **Machine Learning techniques**, **Bayesian analysis**, and **parallelisation methods** for information extraction and the analysis of astrophysical datasets.

11/2021 – 01/2022

Astrophysics Laboratory II Course – University of Padua, Department of Astronomy, Padua, Italy

Assisted in the “**Astrophysics Laboratory II**” course for the Master’s Degree in Astrophysics and Cosmology at the University of Padua, taught by **Prof. Luca Malavolta**. (24 hours)

26/04/2018 – 24/05/2018

Python for Economics and Finance Course – London Business School, London, UK

Assisted in the “**Python for Economics and Finance**” undergraduate course at the London Business School, taught by **Dr. Ekaterina Abramova**. (24 hours)

Thesis supervision

PhDs:

- Leonardo Pagliaro, project on **the atmospheric characterisation of exoplanets using space telescopes**; development of **Machine Learning algorithms** for the analysis of **exoplanet transmission spectra**;
- Riccardo Simonetto, project on the analysis of **direct imaging exoplanets** with Shark, analysis and detection of directly imaged exoplanets using **Machine Learning** techniques.

Master’s Degrees

- *Federica D’Andreamatteo*, Master’s Degree in Astrophysics and Cosmology, University of Padua (2025)
- *Francesco Amadori*, Master’s Degree in Astrophysics and Cosmology, University of Padua (2025)
- *Riccardo Simonetto*, Master’s Degree in Astrophysics and Cosmology, University of Padua (2025)
- *Jeremy Sam John*, Master’s Degree in Astrophysics and Cosmology, University of Padua (2025)
- *Cameron Matthew Kelahan*, Master’s Degree in Data Science, University of Padua (2025)
- *Martina Cacciola*, Master’s Degree in Physics of Data, University of Padua (2025)
- *Blanca Cruz Maestre*, Master’s Degree in Physics of Data, University of Padua (2025)
- *Ylenia Mascolo*, Master’s Degree in Astrophysics and Cosmology, University of Padua (2024)
- *Ivan Stanković*, Master’s Degree in Astrophysics and Cosmology, University of Padua (2024)
- *Leonardo Pagliaro*, Master’s Degree in Astrophysics and Cosmology, University of Padua (2023)
- *Flavio Calzolaio*, Master’s Degree in Astrophysics and Cosmology, University of Padua (2023)

Bachelor’s Degree

- *Anna Filippi*, Bachelor’s Degree in Astronomy, University of Padua (2025)

HONOURS, PRIZES AND AWARDS

23/05/2024

Certification Quantum Weeks Padova

Certificate of participation in the **Quantum Computing School and Hackathon on Tensor Networks**.

02/2023

Certification of Quantum Fundamentals - Qiskit Quantum Explorer

From IBM

11/2022

IBM Quantum Challenge Fall 2022 - Advanced Achievement

From IBM

01/2019

NVIDIA GPU Grant

Awarding of an NVIDIA Titan V GPU for the research project on the atmospheres of exoplanets.

31/10/2017

Royal Astronomical Society Grant

Financial support for participation in the "European Planetary Science Congress 2017" in Riga, Latvia

03/04/2017

Royal Astronomical Society Grant

Financial support for participation in the "Division for Planetary Sciences and European Planetary Science Congress 2017" in Pasadena, California

03/10/2016

Royal Astronomical Society Grant

Financial support for participation in the "UK Exoplanet community meeting 2017" at St Andrews, Scotland.

● SCIENTIFIC CONTRIBUTIONS

Publications in Scientific Journals

I am the author and co-author of **60 peer-reviewed articles** published in international journals in the field of **Astronomy and Astrophysics**, including **5 as first author**. According to the **SAO/NASA ADS** database, these publications have a total of **1,850 citations**, with an **H-index of 22** and an **m-index of 2.4** (*updated as of November 8, 2025*).

Member of the Ariel space mission consortium

Member of the **Ariel Consortium**, an **ESA M4-class space mission** dedicated to the characterization of exoplanet atmospheres. I contributed by demonstrating the **feasibility of characterizing 1,000 planets**. I am involved in the **Atmospheric Retrieval Working Group**, contributing to the development of **two-dimensional atmospheric models** and **Bayesian retrieval frameworks**. I also collaborate on the development of **Artificial Intelligence algorithms** within the **Machine Learning Working Group**. Currently, I lead the **development of quantum computing algorithms** within the consortium to enhance our interpretation of atmospheric data.

Member of GAPS (Global Architecture of Planetary Systems) consortium

Member of the **GAPS Consortium** (*Global Architecture of Planetary Systems*), within the **Working Groups** dedicated to **Neptunian planets** and **atmospheric retrievals**.
Leader of **Work Package 7800: JWST**, overseeing all activities related to **JWST observations and proposals**.

Member of the CHEOPS space mission consortium

Member of the **CHEOPS Mission** (*CHAracterising ExOPlanet Satellite*), participating in the **Atmosphere, MR.Improve, and Explore** Working Groups.
Responsible for **Work Package 3100: Target Selection**, focused on identifying optimal targets for the **Explore** and **MR.Improve** programs.
Serves as the **scientific reference in CHEOPS** for the generation of **atmospheric models** and **retrieval analyses** on transmission and emission spectra.

Member of the PLATO Mission (PLANetary Transits and Oscillations of Stars).

Involved in the development of **Machine Learning models** for light-curve detrending and the discovery of new planets within **Work Packages 111 000** and **112 000**.
Leader of the **Machine Learning Team**, overseeing all activities related to the **development and dissemination of Machine Learning algorithms** for solving the scientific work packages within PLATO.

● PUBLIC ENGAGEMENT AND KNOWLEDGE TRANSFER

2007 – CURRENT

Member of the ORSA Association (Organization for Research and Studies in Astronomy).

Location: Palermo, PA

Member of an **Amateur Astronomy Association**, with which he organized **public outreach events** and **telescope observation nights**.

07/2021 – CURRENT

Member del Amateur Astronomy Association GAP (Gruppo Astrofili Padovani)

Location: Padua, PD

27/06/2025 – 29/06/2025

Seminar on Artificial Intelligence – 25th Madonie Star Party

Seminar organized by the **Organization for Research and Studies in Astronomy (ORSA)** of Palermo during the **25th Madonie Star Party** (June 27-29 2025).
Talk on **Artificial Intelligence** in astrophysics.

Seminar on Exoplanet Research – 20th Madonie Star Party

Seminar organized by the **Organization for Research and Studies in Astronomy (ORSA)** of Palermo during the **20th Madonie Star Party** (July 17–19, 2020).

Talk on **exoplanet research** (available on [YouTube](#)).

Contribution as Local Organizing Committee (LOC)

Contribution as Local Organizing Committee (LOC)

Member of the **LOC** for the upcoming **CHEOPS Science Team Meeting #25** (Padua, September 12–14, 2022).

12/06/2012 – 15/05/2015

Director of the ORSA Astronomical Observatory

Location: Ventimiglia di Sicilia, PA

Responsible for the **research and outreach activities** of the Ventimiglia di Sicilia Astronomical Observatory, part of the **ORSA amateur astronomy association**.

2010 – 2014

Member of the Board of Directors of the ORSA Amateur Astronomy Association

Location: Palermo, PA

Serving as a **Board Member** of the **ORSA Amateur Astronomy Association**.

● SCIENTIFIC COMMITTEES

CURRENT

Referee for the journals *Astronomy and Astrophysics (A&A)*, *Astrophysical Journal (ApJ)*, *Nature Scientific Reports* and *Monthly Notices of the Royal Astronomical Society (MNRAS)*

Referee for the grant application *Research Grants and Scholarships | Subventions de recherche et bourses Natural Sciences and Engineering Research Council of Canada | Conseil de recherches en sciences naturelles et en génie du Canada*

● INVITED TALKS

13/01/2023

Geneva Observatory – Geneva, Switzerland

Seminar on **exoplanet characterization using Bayesian methods and Artificial Intelligence**.

23/10/2019

JSPS core-to-core program Planet2/RESCEU - Tokyo, Japan

Seminar on the use of **Artificial Intelligence**, and in particular **ExoGAN**, for the study of exoplanets.

28/01/2019

Digital Exoplanets Workshop – Prague, Czech Republic

Theoretical and practical seminar on the use of **ExoGAN**, a **Deep Convolutional Generative Adversarial Network** for studying **exoplanet atmospheres**.

● TALKS

06/2023

Ariel Workshop - Tenerife, Spagna

Quantum Computing for Exoplanets

05/2023

Ariel IT Workshop - Palermo, Italia

Quantum Computing for Exoplanets

03/2023

CHEOPS Science Team meeting - Kiruna, Svezia

TOI-1803 system architecture updates

02/2023

Exoplanet Modeling and Analysis Center (EMAC) workshop - Online

TauREx2D Towards multidimensional retrievals

09/2022

CHEOPS Science Team meeting - Padova, Italia

TOI-1803 system architecture updates

10/2022

Ariel Workshop - Bologna, Italia

TauREx2D Towards 2D retrievals

05/2022

ARIEL IT workshop - Online

TauREx2D Towards 2D retrievals

09/2021

Euoplanet Science Congress (EPSC) meeting - Online

TauREx2D - Towards 2D retrievals

06/2021

Ariel Workshop - Online

TauREx2D - Towards 2D retrievals

03/2021

Exoplanets A Congress - Online

TauREx2D Towards 2D retrievals

10/2019

Resceu Symposium - Okinawa, Japan

ExoGAN Retrieving Exoplanetary Atmospheres using Deep Convolutional Generative Adversarial Networks

10/2018

ARIEL IT workshop - Roma, Italia

ExoGAN Retrieving Exoplanetary Atmospheres using Deep Convolutional Generative Adversarial Networks

09/2018

Euoplanet Science Congress (EPSC) meeting - Berlino, Germania

ExoGAN Retrieving Exoplanetary Atmospheres using Deep Convolutional Generative Adversarial Networks

06/2018

Center for Planetary Sciences (CPS) meeting - Dorking, Gran Bretagna

ExoGAN Retrieving Exoplanetary Atmospheres using Deep Convolutional Generative Adversarial Networks

05/2017

GAPS workshop - Palermo, Italia

Orbital Evolution of Extrasolar Giant Planets

11/2016

Ariel Open Conference - Bruxelles, Belgio

The Ariel Mission Reference Sample

05/2016

Ariel Workshop - Varsavia, Polonia

Choosing an optimal target list for the ARIEL space mission

01/2016

Ariel Workshop - Barcellona, Spagna

Planning the target list for the ARIEL space mission

● SELF-DECLARATION AND PRIVACY STATEMENT

The information contained in this *curriculum vitae et studiorum* is provided under my personal responsibility, pursuant to Articles 46 and 47 of the Decree of the President of the Republic of December 28, 2000, No. 445, and subsequent amendments and additions. I am aware of the criminal liability provided for under Article 76 of the same Decree in cases of false statements and misrepresentation.

I hereby authorise the processing of my personal data contained in this CV in accordance with Article 13 of Legislative Decree No. 196 of June 30, 2003 — “*Personal Data Protection Code*” — and Article 13 of EU Regulation 679/2016 — “*General Data Protection Regulation (GDPR)*”.

Padova , 08/11/2025