



## Paolo Cremonese, Ph.D. Researcher



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PaoloCremo

## About me

I am a researcher with experience up to the Postdoctoral level, specialised in gravitational waves, with a strong background on data analysis. I have a passion for finance, technology, and continuous learning, complemented by a love for travel. I love tackling challenging problems and am now seeking to leverage my analytical skills and passion for innovation in a dynamic opportunity outside of academia, where I can combine my interests in finance and technology.

## Skills

Python - pandas,  
numpy, matplotlib,  
tensorflow,  
scikit-learn

$\text{\LaTeX}$

Git

HTML/CSS

Mathematica

Slurm -

HTCondor

SQL

Linux

## Languages

Italian - Mother Tongue

English - Fluent

Spanish - Basics

## Interests

Technology

Data Analysis

Finance and Investments

Sports, Books & Piano.

## Work Experience

### 2022-2024 PostDoc Researcher

UIB, Palma, Spain

Data Scientist. Member of LIGO collaboration.

I developed tools to analyze Gravitational Waves data, focusing on finding events that are bent or magnified by massive objects (i.e. lensing). I also worked on a project to organize and automate the process of detecting these lensed events more efficiently.

### 2018 Internship as Data Scientist

DBA Group, Italy

I worked in a team focused on developing methods to record and analyse diverse datasets, ranging from meteorological to industrial data, using machine learning techniques to predict outcomes and improve data-driven decision-making

## Education

### 2022 Ph.D. in Physics

Szczecin, Poland

*Gravitational lensing of Gravitational Waves*

### 2017 M.Sc. in Astronomy

Padova, Italy & Stockholm, Sweden

Thesis on lensing of gravitational waves done at Stockholm university

### 2015 B.Sc. in Astronomy

Padova, Italy

Thesis on dark matter in spiral galaxies

## Projects

- #personalfinance #appdevelop #sideprojects I'm developing a personalised mobile app to help manage personal finances. This includes creating a custom Python package to track expenses and investments. On the side, I'm also working on a fun project that lets me control Spotify playlists and building a bot to send daily updates of new research papers from ArXiv based on topics of interest.
- #website I designed and coded my own website, where I keep my info, thoughts and different things.

## Main Publications

- #6 Invariance transformations in wave-optics lensing: implications for gravitational-wave astrophysics and cosmology
- #5 Follow-up Analyses to the O3 LIGO-Virgo-KAGRA Lensing Searches
- #4 Characteristic features of Gravitational Wave lensing as probe of lens mass model
- #3 Breaking the mass-sheet degeneracy with gravitational wave interference in lensed events
- #2 High accuracy on  $H_0$  measurements from gravitational wave lensing events
- #1 The lensing time delay between gravitational and electromagnetic waves

The complete list at [inspirehep.net/authors/1859874](https://inspirehep.net/authors/1859874)

## Mentions

- #2 Top ArXiv papers from week15, 2021 - S.Vagnozzi - [Link to article](#)
- #1 Constraining the Hubble Constant with Lensed Gravitational Wave Events, 2019 - K. Shin - [Link to article](#)

## Conferences Presentations

- “Mass-Sheet Degeneracy in Gravitational Wave Lensing” @ NBI Strong Group seminar, 2023/12; LVK meeting, 2023/09
- “Wave Optics in Gravitational Wave Lensing” @ UBC Gravity seminar, 2023/09
- Divulgate talk on Dark matter @ YouTube, 2022/10
- Presented paper #3 @ GWverse, 2021/09; Gravitex 2021, 2021/08; COSMO '21, 2021/08; Amaldi 14, 2021/07 Cosmology from Home, 2021/07; Ibericos 2021/04
- Presented paper #2 @ Cosmic controversies, 2019/10
- Member of organizing committee @ The 6th Conference of the Polish Society on Relativity, 2019/09

The complete list with slides and link to conferences at [paolocremonese.com/CV](https://paolocremonese.com/CV)