

CURRICULUM VITAE ET STUDIORUM

CHIARA DI FRONZO

Date of birth: 25/03/1991
Place of birth: ROMA (Italy)
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EDUCATION

- Philosophiae Doctor degree at University of Birmingham (UK).
Thesis Title: **Innovative perspectives for seismic isolation of Gravitational-wave detectors**
Supervisors: Dr. Conor Mow-Lowry and Prof. Andreas Freise
Degree: February 2022

- Master degree in PHYSICS obtained on 29th May 2017
Specified field of the degree course: GRAVITATIONAL WAVES
Thesis title: **Enhancement of the optical system for aberration control in advanced gravitational wave interferometers**
Score: 110/110 cum laude
Università di Roma Tor Vergata
Facoltà di scienze matematiche, fisiche e naturali

- 1st level degree/bachelor in PHYSICS obtained on 21st March 2014
Specified field of the degree course: ASTROPHYSICS
Thesis title: **La nube G2 e il Black Hole del Centro Galattico**
Score: 84/110
Università di Roma Tor Vergata
Facoltà di scienze matematiche, fisiche e naturali

- Classical studies diploma, 2005-2010
Score: 94/100
Liceo Ginnasio Statale Augusto, Roma.

WORK

- **2022 – Now** Postdoctoral researcher at Precision Mechatronic Laboratory (PML), University of Liege (Belgium)
- **2019** 2nd year lab demonstrator, second term, University of Birmingham

RESEARCH INTERESTS

During my academic life, I have worked with two of the gravitational-wave collaborations, LIGO and Virgo. My contribution touched several aspects of lab work for improvement of the interferometric detectors: from thermal compensation for the enhancement of Virgo's performances affected by thermal expansions of optics, to seismic isolation. In particular, my recent research work with the UoB lab group focussed on the development of new technologies to sense and control seismic noise on interferometric detectors. Moreover, During a short time spent on LIGO Hanford, I had the opportunity to collaborate with the seismic lab group of both LIGO sites to reduce the

seismic noise of the instrument. I am currently involved in the research for seismic noise reduction at PML in Liege.

I am interested in general in experimental physics for gravitational-wave detectors.

SKILLS

- **Languages**
 - Italian (native speaker)
 - English (fluent)
 - French (learner)
- **Technology**
 - Softwares: Windows, MatLab, Simulink, Zemax, Inventor, Inkscape, CDS (Control and Data System)
 - Programming languages: C, Fortran, IDL
- **Instrumentation**
 - Experiences in optics and with CO2 lasers
 - Experiences with the Hartmann Wavefront Sensor for the wavefront distortions measurements
 - Experiences with solar observations and use of telescopes
 - Laser frequency stabilization with small interferometers
 - Use of Optical Levers
 - Use of a Control and Data System (CDS)
- **Planning&mentoring**
 - PML-Nickef workshop organized
 - Mentoring activity for PhD students at PML
 - ETEST experiment management
- **Personal**
 - Skilled at working in team
 - Skilled at organising projects and group works
 - Good at learning quickly
 - Trained to work independently and on my own when needed
 - Adaptive in changing of circumstances
 - Very good at meeting deadlines

TRAINING EXPERIENCES

- Internships during studies:
 - **AEI Hannover**, 17-21 June 2019: discussion and tests for Optical Levers
 - **LIGO Fellowship program**: 27 June-27 November 2019, LIGO Hanford site, Washington state, USA
 - **European Gravitational Observatory**, January 2017.
 - Collaboration to the installation of optics and laser beam profiling on TCS benches of Advanced Virgo.
 - **Central heating design for the Advanced Virgo scaled Thermal Compensation System**, October 2016.
 - Università di Roma Tor Vergata, Facoltà di scienze matematiche, fisiche e naturali. Supervisor: prof. Viviana Fafone

- **Determination of age, distance and metallicity of the globular cluster M4**, data analysis, 2015
 - Università di Roma Tor Vergata, Facoltà di scienze matematiche, fisiche e naturali. Supervisors: prof. G. Bono, Dr. V. Braga
- **Astronomical observation**, 2012
 - Astronomic Observatory of Teramo (Italy) Supervisor: prof. Roberto Buonanno
- Private lessons to high school students in mathematics, physics and English.

OUTREACH

- Genoa Science Festival 2021 – On the behalf of University of Birmingham and the experimental Gravitational-wave group: **How interferometers work, a zoom meeting with schools** (October 2021)
<http://festival2021.festivalscienza.it/site/home/programma-scuole/onde-gravitazionali-mappe-del-tesoro-cosm.html>
- Build up and installation of a small interferometer at the Thinktank Museum, Birmingham (2018)
<http://www.sr.bham.ac.uk/exhibit/whereisit.html>
- Tutoring for students from East Anglia University (UK) in building a small interferometer for outreach events (June 2018)
- Open days, University of Birmingham
 - 23rd June 2018
 - 20th October 2018
- Presentation of Advanced Virgo scaled TCS to high school students, 2017.
- Public astronomical observation at Astronomic Observatory of Teramo (Italy), 2012.

CONFERENCES and AWARDS

- LVC meeting, 4-7 September 2018, Maastricht (The Netherlands)
 - Poster presented: **Optical Levers for interferometric inertial isolation.**
 - **Poster prize awarded.**
- ET Symposium, 11-13 April 2019, Orosei, Sardinia, Italy
 - Poster presented: **A 6D Interferometric Inertial Isolation System.**
- Prize “Tito Maiani” for Master’s thesis in Gravitational Waves awarded from Accademia dei Lincei, June 2019
https://www.lincoln.it/sites/default/files/documenti/Premi_Borse/Premiati_2019.pdf
- LVK meeting 14 -18 September 2020 (virtual)
 - Talk presented: **Reducing differential motion of Advanced LIGO seismic platforms to improve interferometer control signals**
- LVK meeting 6-10 September 2021 (virtual)
 - Talk presented: **Laser stabilization for 6D and UoB updates**

WORKSHOPS

- Low frequency workshop. University of Birmingham, 28-31 Aug 2018
- GWADW. Virtual, 17-21 May 2021
- PML-Nickef workshop. Université de Liège, Liège, 28-29 Sept 2022

FELLOWSHIPS and FUNDINGS

- OzGrav Visitor Funding award, June/July 2023
- LIGO Fellowship program: fundings from 27 June-27 November 2019, LIGO Hanford site, Washington state, USA
- Royal Astronomical Society: funding for travelling to LVK 2018

PERSONAL INTERESTS

- ❖ Yoga and meditation
- ❖ Water-colouring
- ❖ Book reader
- ❖ Theatre and art exhibitions
- ❖ Travels
- ❖ Eco-friendly lifestyle
- ❖ Blood donor **#EveryDonationCounts**
- ❖ Supporter of Still I Rise non-profit foundation **#WhenSchoolsSaveLives**
- ❖ I believe in non-violence to rule the World **#StopProducingWeapons**

“Cominciamo a prendere le decisioni che ci riguardano e che riguardano gli altri sulla base di più moralità e meno interesse. Facciamo più quello che è giusto, invece di quel che ci conviene.

Educhiamo i figli ad essere onesti, non furbi.”

Tiziano Terzani, Lettere contro la guerra.

Chiara Di Fronzo

