## PERSONAL INFORMATION

# Francesco Pirolo

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Date of birth 15 September 1998 | Nationality Italian

## WORK EXPERIENCE

**2018– Present**

### Tutor

Bari, Italy. Bologna, Italy

I've been tutoring several high schools and university students (Physics, Statistics and Maths exams preparation).

## EDUCATION AND TRAINING

**2024–in progress**

### PHD in Physics                                                                ISCED 6

University of Bologna, Italy

Supervised by: Pierbiagio Pieri, Leonardo Pisani, Lorenzo Piroli

**2021–2024**

### Master's degree in Physics                                           ISCED 5

University of Bologna, Italy

Final grade: 109/110

Thesis title: *Entanglement entropy approach to the Attractive Hubbard Model*

Relevant exams: Quantum computing, Interactions and Correlations in Condensed Matter, States of Matter and Radiation, Statistical Field Theory, Quantum Field Theory I & II, Complex Networks

Relevant Projects:
- *Quantum simulation of lattice gauge theories after a quantum quench* (`https://drive.google.com/drive/u/0/folders/113pm13QIyIRPQuMZiHX-8uRdz9PXEJDf`, I experienced working with Qiskit, benchmarking hardware capabilities of quantum platforms)
- Informative talk about *Entanglement entropy after a quantum quench*, within the course Advanced Skills for Research
- *Multicriticality and Yang-Lee edge singularities* (`https://drive.google.com/drive/u/0/folders/17VK53EdXmCIPo5OccIqZI4-_q3cJTXeR`, I learnt about non-unitary deformations of the critical Ising model and Tricritical Ising model, Truncated Conformal Space Approach)
- *2D Ising systems : a complex network perspective* (`https://drive.google.com/drive/u/0/folders/1mRjI1uBjI9NZe6e5ftRw9Xu0ssCN_Ir4`, I experienced working with NetworkX, using network measures to characterise criticality)
- Hubbard model and its atomic limit (`https://drive.google.com/drive/u/0/folders/13wfrKaYWZAF2HMEzj1dL_Usr_i5NJVqQ`, I learnt about using equations of motion approach to compute Green's function).

**2017–2021**

### Bachelor's Degree in Physics

University of Bari Aldo Moro, Bari, Italy

Final grade : 105/110

Thesis title: *The connection between entropy and disorder*

Relevant projects: Simulation of multi-species prey-predator systems with different crowding effects in MATLAB

**2017**

Workshop: Masterclass Fermi

University of Bari Aldo Moro, Bari, Italy

## PERSONAL SKILLS

**Mother tongue**   Italian

**Other languages**

| UNDERSTANDING | | SPEAKING | | WRITING |
|---|---|---|---|---|
| Listening | Reading | Spoken interaction | Spoken production | |
| English | | | | |
| C1 | C1 | C1 | C1 | C1 |
| I passed my C1 exam in 2017. | | | | |
| French | | | | |
| B1 | B1 | B1 | B1 | B1 |

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
Common European Framework of Reference for Languages

**Communication skills**
– Presentation skills: I've had the chance to give several presentations in front of other people (both professors and students).
– Team-work: I've been engaged in three group projects (two in my BSc, one in my MSc) and I've been part of three laboratory groups during my Bachelor's Degree.

**Digital competences**

| SELF-ASSESSMENT | | | | |
|---|---|---|---|---|
| Information Processing | Communication | Content creation | Safety | Problem solving |
| Independent user | Proficient user | Proficient user | Basic user | Proficient user |

Digital competences - Self-assessment grid

**Computer skills**
– proficient at writing in Python (Qiskit, scipy, pandas, NetworkX), Latex
– competent with MATLAB, Java, Processing, RStudio
– competent with Microsoft Office programmes (Word, Excel, PowerPoint)
– basic experience with Adobe programmes (Photoshop, After Effects)
– competent with Ableton Live

**Other skills**   3rd place at national poetry slam competition