



# Dario Abbondanza

Gender: Male

## TEACHING AND RESEARCH ACTIVITIES

---

### Postdoctoral researcher at Sapienza University of Rome

[ 04/2021 – Current ]

Postdoctoral researcher in theoretical and computational fluid dynamics, fluid-structure interaction and multiphase flows.

### Teaching assistant at Sapienza University of Rome

[ 03/2021 – 06/2021 ]

Teaching assistant for the course of Computational Aerodynamics Laboratory (Prof. Carlo Massimo Casciola)

### Teaching assistant at Sapienza University of Rome

[ 10/2019 – 01/2020 ]

Teaching assistant for the course of Analytical Mechanics (Prof. Daniele Andreucci)

### Instructor at Temple University Rome Campus

[ 01/2021 – Current ]

Instructor for the course ENGR 3571 - Classical and Statistical Thermodynamics.

### Teaching assistant at Temple University Rome Campus

[ 01/2019 – 04/2019 ]

Teaching assistant for the course ENGR 3571 - Classical and Statistical Thermodynamics

### Visiting postgraduate student at University of Glasgow

[ 09/2018 – 12/2018 ]

Developing structural mechanics code to simulate elastoplastic material behavior.

Supervisor: Dr. Andrew McBride

### Co-advisor of 2 Master Thesis

## EDUCATION AND TRAINING

---

### Ph.D. in Theoretical and Applied Mechanics

*Sapienza University of Rome* [ 01/11/2017 – 31/12/2020 ]

[https://phd.uniroma1.it/web/THEORETICAL-AND-APPLIED-MECHANICS\\_nD3520\\_EN.aspx](https://phd.uniroma1.it/web/THEORETICAL-AND-APPLIED-MECHANICS_nD3520_EN.aspx)

Field(s) of study: Computational and Theoretical Fluid Dynamics

Final grade : cum laude

Thesis: Diffuse interface modelling of micro/nano cavitation bubbles and their interactions with elastoplastic walls

## **M.S. in Mechanical Engineering**

**Sapienza University of Rome** [ 01/10/2015 – 30/10/2017 ]

Field(s) of study: Fluid Dynamics

Final grade : 110/110 cum laude

Thesis: A numerical model for the dynamics of macroscopic cavitation bubbles near solid boundaries

## **M.S. at Sapienza School for Advanced Studies (SSAS)**

**Sapienza University of Rome** [ 01/11/2015 – 30/10/2017 ]

<https://web.uniroma1.it/ssas/en>

Final grade : 70/70 cum laude

Thesis: Fluid structure interaction: cavitation phenomena

## **B.S. in Mechanical Engineering**

**Sapienza University of Rome** [ 01/10/2012 – 21/12/2015 ]

Field(s) of study: Engineering, manufacturing and construction

Final grade : 110/110 cum laude

Thesis: Functionally graded beams under the action of distributed loads and thermal gradients

## **B.S. at Sapienza School for Advanced Studies (SSAS)**

**Sapienza University of Rome** [ 01/11/2012 – 30/10/2015 ]

<https://web.uniroma1.it/ssas/en>

Final grade : 70/70 cum laude

Thesis: An energetic model for the study of linear dynamics and eigenfrequencies of nano-beams

## **Diploma Liceo Classico**

**Liceo classico "Luciano Manara"** [ 09/2007 – 06/2012 ]

Address: Rome (Italy)

Final grade : 98/100

## **INTERNATIONAL PROJECTS**

---

### **Collaborator in the ERC Advanced Grant for the project BIC**

Project **BIC** (Cavitation across scales: following Bubble from Inception to Collapse, agreement # 339446–BIC P.I. Prof. Carlo Massimo Casciola).

### **Collaborator in the ERC Proof-of-Concept (2017 call) project INVICTUS**

Project **INVICTUS** (IN Vitro Cavitation Through UltraSound, proposal # 779751 P.I. Prof. Carlo Massimo Casciola).

## **PROJECTS**

---

### **Iscra C Cineca**

[ 01/05/2020 – Current ]

**ACID** - Assessing Cavitation Induced Deformations (P.I.).

Assigned budget: 80000 core hours on GALILEO supercomputer

### **Sapienza project**

[ 27/10/2019 – 27/10/2020 ]

**Avvio alla ricerca** - Numerical implementation of elasto-viscoplastic models with damage for the study of the strong interaction between a capillary fluid and a solid material. (P.I. - 1200€ funding)

## **Iscra B Cineca**

[ 19/08/2019 – 19/08/2020 ]

**HET-NUCL** (Collaborator)

Assigned budget: 1.5M core hours on GALILEO supercomputer

## **Iscra C Cineca**

[ 06/12/2018 – 06/09/2019 ]

**CESM** - *Cavitation Effects on Solid Materials* (P.I.).

Assigned budget: 112500 core hours on MARCONI KNL supercomputer

## **PUBLICATIONS**

---

### **Linear dynamic response of nanobeams accounting for higher gradient effects.**

[2016]

<https://iris.uniroma1.it/handle/11573/1272667#.X9EjM9hKiUk>

Abbondanza, Dario; Battista, Daniele; Morabito, Francescogiuseppe; Pallante, Chiara; Barretta, Raffaele; Luciano, Raimondo; de Sciarra, Francesco Marotti; Ruta, Giuseppe. - In: JOURNAL OF APPLIED AND COMPUTATIONAL MECHANICS. - ISSN 2383-4536. - 2:2(2016), pp. 54-64.

### **Modulated linear dynamics of nanobeams accounting for higher gradient effects**

[2016]

<https://iris.uniroma1.it/handle/11573/1070674#.X9EjedhKiUk>

Abbondanza, Dario; Battista, Daniele; Morabito, Francescogiuseppe; Pallante, Chiara; Barretta, Raffaele; Luciano, Raimondo; de Sciarra, Francesco Marotti; Ruta, Giuseppe. - In: INTERNATIONAL JOURNAL OF ENGINEERING AND APPLIED SCIENCES. - ISSN 1309-0267. - ELETTRONICO. - 8:2(2016), pp. 1-20.

## **CONFERENCES AND SEMINARS**

---

### **Artificial Intelligence: a glimpse of techniques, ethical issues & interaction with humanities (organizer)**

[ Online, 12/06/2020 ]

Workshop organized with the support of the **Institut français**, in the context of the **Cassini Project 2019** for Ph.D. students.

<https://sites.google.com/uniroma1.it/cassiniworkshop2020/home-page>

<https://www.youtube.com/watch?v=p6oSaSjTPME>

<https://www.youtube.com/watch?v=aBeisgvgzIE>

### **CECAM - Challenges in Multiphase Flows (participant)**

[ Monash University, Prato Center, Tuscany, Italy, 09/12/2019 – 12/12/2019 ]

<https://users.monash.edu.au/~rprakash/cecam2019/home.html>

### **Sixth deal.II Users and Developers Workshop (participant)**

[ SISSA University, Trieste, Italy, 23/07/2018 – 27/07/2018 ]

<https://indico.sissa.it/event/23/>

## **DIGITAL SKILLS**

---

### **Software for scientific editing and production**

Tecplot360 / Wolfram Mathematica / LaTeX / Gnuplot / GiMP

### **Operating systems used**

Linux / Windows / IOS

### **Programming languages**

C / C++ / Basic of Python / Basic of Fortran

### **HPC libraries**

PETSc / deal.II

## **HONOURS AND AWARDS**

---

### **Laureato eccellente 2018**

Fondazione Roma Sapienza [ 2018 ]

Among the 500 best graduate students for the academic year 2016/2017

## **LANGUAGE SKILLS**

---

Mother tongue(s): **Italian**

Other language(s):

### **English**

**LISTENING C1 READING C1 WRITING C1**

**SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1**

Il sottoscritto Dario Abbondanza autorizza la pubblicazione del presente curriculum sul sito Amministrazione Trasparente di Ateneo.

Roma, 21/01/2022

