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

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/sssas/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/sssas/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=aBeisgvgzlE

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