

FRANCESCA PELUSI — CURRICULUM VITAE

PERSONAL DETAILS

Given and family name:

Francesca Pelusi

Date and place of Birth:

4 April 1993, Frascati

E-mail: francesca.pelusi@roma2.infn.it



EDUCATION

Ph.D. in Physics, University of Rome "Tor Vergata" (November 2017 → present).

Thesis advisor: Prof. Mauro Sbragaglia, Department of Physics and INFN, University of Rome "Tor Vergata".

Thesis title: *Mesoscale dynamics and plasticity of Soft Materials.*

Master degree in Physics, University of Rome "Tor Vergata" (October 2015 → October 2017).

Thesis advisors: Prof. Mauro Sbragaglia and Dott. Matteo Lulli, Department of Physics and INFN, University of Rome "Tor Vergata".

Thesis title: *Mesoscopic analysis of concentrated emulsions in microchannels.*

(110/110 Magna Cum Laude)

Bachelor degree in Physics, University of Rome "Tor Vergata" (October 2012 → October 2015).

Thesis advisor: Prof. Roberto Frezzotti, Department of Physics and INFN, University of Rome "Tor Vergata".

Thesis title: *Single particle states in relativistic quantum mechanics.*

(110/110 Magna Cum Laude)

RESEARCH INTERESTS

My main research activity is focused on the study of **complex fluids** and **biphasic systems** using **lattice Boltzmann** numerical simulations. The most fascinating aspects of these model systems is their wide applicability: from the study of their properties across scales (microscopic, **mesoscopic** and macroscopic) a rich variety of physical phenomena can be explored, ranging from **microfluidics**, to the dynamics of **earthquakes**, to the **heat transfer** properties of dense suspensions. From the computational point of view, I am also interested about **parallel computing** codes on GPUs.

TEACHING EXPERIENCE

2017 → 2020 General Physics, teaching assistant
Department of Physics, University of Rome "Tor Vergata"

STUDENTS SUPERVISION

2018/2019 Giulia di Palma
Thesis title: *Spatial cooperativity in the flow of concentrated emulsions in microchannels: theory and simulations*
University of Rome "Tor Vergata", Department of Physics (Bachelor Thesis)

SCHOLARSHIPS

- 2016 September → October** Summer school scholarship
INFN Istituto Nazionale di Fisica Nucleare, Frascati, Italy
- 2014/2015** Scholarship for the admission to the student college of master degree on physics
College for merit "Luciano Fonda", University of Trieste, Italy
- 2012 → 2015** Four incentive for enrollment scholarships
University of Rome "Tor Vergata", Italy

MEMBERSHIPS

- 2018 → present** : Member of APS (American Physical Society, USA)
- 2016 → present** : Member of INFN (Istituto Nazionale Fisica Nucleare, Italy)

PUBLICATIONS

3. Francesca Pelusi, Mauro Sbragaglia and Andrea Scagliarini, *Taming heat transfer by droplets dispersions*, in preparation (2020).
2. Francesca Pelusi, Mauro Sbragaglia, Andrea Scagliarini, Matteo Lulli, Massimo Bernaschi and Sauro Succi, *On the impact of controlled wall roughness shape on the flow of a soft material*, EPL (Europhysics Letters) **127** (3), 34005 (2019)
<https://iopscience.iop.org/article/10.1209/0295-5075/127/34005>
1. Francesca Pelusi, Mauro Sbragaglia, and Roberto Benzi, *Avalanche statistics during coarsening dynamics*, Soft Matter **15**, 4518 (2019).
<https://doi.org/10.1039/c9sm00332k>

CONTRIBUTED PRESENTATIONS, POSTERS & SCHOOLS

- Feb., 2020** Workshop "Fields and Particles in Turbulence" (Rome, Italy)
Talk title: *Avalanche statistics during coarsening dynamics of biphasic systems*
- Nov., 2019** 72st Annual Meeting of the APS Division of Fluid Dynamics (Seattle, USA)
Talk title: *Across criticality in convection of Yield-Stress Fluids*
- Jul., 2019** 28th International Conference on Discrete Simulation of Fluid Dynamics (DSFD19, Bangalore, India)
Talk title: *Evidences of avalanche statistics in the coarsening dynamics of a biphasic system via lattice Boltzmann simulations*
- Jun., 2019** 10th Young Researcher Meeting (Rome, Italy)
Poster title: *Avalanche statistics in the coarsening dynamics of a biphasic system via lattice-Boltzmann simulations*
- Mar., 2019** Winter School, course in "Computational Mathematical Modelling" (Geilo, Norway)
- Nov., 2018** 71st Annual Meeting of the APS Division of Fluid Dynamics (Atlanta, USA)
Talk title: *Flow and slippage of soft-material by controlled surface roughness shape*
- Sept., 2018** Disordered serendipity: a glassy path to discovery (Rome, Italy)
Poster title: *Flow of Soft-Glassy materials in confined microchannels: does roughness shape matter?*
- Sept., 2018** Italian Soft Days 2018 (Padova, Italy)
Poster title: *Quantitative characterization of coarsening dynamics in a biphasic system via the lattice Boltzmann method*

- Sept., 2018** 12th European Fluid Mechanics Conference (EFMC12, Wien, Austria)
Talk title: *Earthquakes statistics out of coarsening dynamics in a dry biphasic system*
- Jul., 2018** 12th Conference dedicated to Foams and Applications (EUFOAM 2018, Liege, Belgium)
Poster title: *Quantitative characterization of coarsening dynamics in a biphasic system via the lattice Boltzmann method*
- Jul., 2018** International School of Physics “Enrico Fermi”, course on “Mechanics of Earthquake Faulting” (Varenna, Italy)
Poster title: *Quantitative characterization of coarsening dynamics in a biphasic system via the lattice Boltzmann method*
- Jun., 2018** Day of Younger Researcher IAC 2018 (“Giovani IAC 2018”, Rome, Italy)
Talk title: *Flow of Soft-Glassy materials in confined microchannels: roughness shape matters*
- Nov., 2017** Workshop on “HPC methods for Computational Fluid Dynamics and Astrophysics” (Bologna, Italy)
- Nov., 2017** Workshop on “C and C++ Programming Course” (Rome, Italy)

COMPUTER SKILLS

- Operating systems** Advanced experience with the most popular flavors of Linux, Ubuntu, Debian, Microsoft Windows, Mac OS X
- Programming, scripting and markup languages** C, C++, Fortran 90/95, CUDA, awk, L^AT_EX and something about bash

DATE	SIGNATURE
07/02/2020	Francesca Pelusi