

# Daniele Coslovich – CV

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## PERSONAL INFORMATION

Date of birth: 30/01/1980

Nationality: Italian

E-mail: dcoslovich@units.it

Webpage: <https://www.units.it/daniele.coslovich/>

## CURRENT POSITION

**Associate Professor** ..... 2020–  
Dipartimento di Fisica, Università di Trieste (Italy)

## ACADEMIC TRACK

**Abilitazione scientifica nazionale, professore di seconda fascia settore 02/B2** ..... 2018  
MIUR (Ministero dell'Istruzione, dell'Università e della Ricerca), Italy

**Habilitation à diriger des recherches (HDR)** ..... 2017  
“*Models and computer simulations of glass- and cluster-forming systems*”  
University of Montpellier, France

**Maitre de conférences (Associate Professor)** ..... 2011–2020  
Laboratoire Charles Coulomb, University of Montpellier, Montpellier (France)

**Maitre de conférences (Associate Professor)** ..... 2010–2011  
Laboratoire de Colloïdes, Verres et Nanomatériaux, University of Montpellier 2, Montpellier (France)

**Post-doc** ..... 2008–2010  
“*Glass formation of colloids confined in porous materials*”  
Soft Matter Theory group, Technische Universität Wien, Austria  
Group leader: Gerhard Kahl

**Ph.D. in Physics** ..... 2005–2008  
“*Connections between structure, dynamics, and energy landscape in simple models of glass-forming liquids*”  
University of Trieste, Italy  
Supervisor: Giorgio Pastore

**Fellowship CNR-INFN** ..... 2004–2004  
“*Large-scale atomistic simulations*”  
Centro di simulazione CNR-INFN “Democritos”, Trieste, Italy

**Laurea in Physics** ..... 1999–2004  
“*Superfici d'energia, ergodicità e dinamica come indicatori della transizione liquido-vetro*”  
University of Trieste, Italy  
Supervisor: Giorgio Pastore  
Grade: 110/110 cum laude

## Research

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My research interests concern the physics of **disordered states of matter**, with a particular focus on **supercooled liquids** and **glasses**. I am also interested in modeling the phase behavior, structure and dynamics of **soft condensed matter**. My work is based on the methods of **statistical physics**, **liquid state theory** and on **computer simulations**. Over the years, I developed a computational approach based on **reproducible research** methods, **high-performance computing** and on a high-level **simulation framework** called **atooms**.

### FELLOWSHIPS

- JSPS Invitational Fellowship for Research in Japan (Short Term) .....2019  
University of Tokyo and University of Nagoya

### AWARDS

- IOP Outstanding Reviewer Award 2022 .....2022
- Prime d'encadrement doctoral et de recherche (PEDR) .....2018  
<https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000020833322>
- Top reviewer award for the Journal of Chemical Physics .....2012
- ICTP Award, International Center for Theoretical Physics (ICTP) .....2004
- Luciano Fonda scholarship for undergraduate students in Physics .....2000  
Corso di Laurea in Fisica, University of Trieste

### RESEARCH PROJECTS

- Participant in ERC project .....2012–2017  
“Statistical physics of dense particle systems in the absence of thermal fluctuations”  
Principal investigator: Ludovic Berthier
- Principal investigator in PRACE project .....2014–2015  
“Amorphous order in glassy silica”
- Principal investigator in PRACE project .....2013–2014  
“Multi-GPU parallel tempering simulations”

Note: PRACE is a European network that provides access to high performance computing (HPC) resources to researchers and scientists in academia and industry through peer-review. Allocated resources are computing hours in European HPC centers.

### RESEARCH ARTICLES

1. “Glassy Dynamics and Local Crystalline Order in Two-Dimensional Amorphous Silica”  
M. Dirindin, D. Coslovich, [The Journal of Physical Chemistry B](#) **129**, 1095 (2025)
2. “Roadmap on machine learning glassy dynamics”  
G. Jung, R. M. Alkemade, V. Bapst, D. Coslovich, L. Fillion, F. P. Landes, A. J. Liu, F. S. Pezzicoli, H. Shiba, G. Volpe, F. Zamponi, L. Berthier, G. Biroli, [Nature Reviews Physics](#) **7**, 91 (2025)
3. “Policy-guided Monte Carlo on general state spaces: Application to glass-forming mixtures”  
L. Galliano, R. Rende, D. Coslovich, [The Journal of Chemical Physics](#) **161**, 064503 (2024) [dataset]
4. “Dimensionality reduction of local structure in glassy binary mixtures”  
D. Coslovich, R. L. Jack, J. Paret, [The Journal of Chemical Physics](#) **157**, 204503 (2022) [dataset]
5. “Revisiting the single-saddle model for the  $\beta$ -relaxation of supercooled liquids”  
D. Coslovich, A. Ikeda, [The Journal of Chemical Physics](#) **156**, 094503 (2022) [dataset]
6. “partycls: A Python package for structural clustering”  
J. Paret, D. Coslovich, [Journal of Open Source Software](#) **6**, 3723 (2021)

7. “Spatial structure of unstable normal modes in a glass-forming liquid”  
M. Shimada, D. Coslovich, H. Mizuno, A. Ikeda, *SciPost Physics* **10**, 001 (2021)
8. “Assessing the structural heterogeneity of supercooled liquids through community inference”  
J. Paret, R. L. Jack, D. Coslovich, *The Journal of Chemical Physics* **152**, 144502 (2020) [dataset]  
→ Selected as an Editor’s pick
9. “A localization transition underlies the mode-coupling crossover of glasses”  
D. Coslovich, A. Ninarello, L. Berthier, *SciPost Physics* **7**, 077 (2019) [dataset]  
→ Selected as Scipost Select
10. “Dynamic and thermodynamic crossover scenarios in the Kob-Andersen mixture: Insights from multi-CPU and multi-GPU simulations”  
D. Coslovich, M. Ozawa, W. Kob, *The European Physical Journal E* **41**, 62 (2018) [dataset]  
→ Invited contribution to the topical issue “Advances in Computational Methods for Soft Matter Systems”
11. “Local order and crystallization of dense polydisperse hard spheres”  
D. Coslovich, M. Ozawa, L. Berthier, *Journal of Physics: Condensed Matter* **30**, 144004 (2018) [dataset]
12. “Configurational entropy measurements in extremely supercooled liquids that break the glass ceiling”  
L. Berthier, P. Charbonneau, D. Coslovich, A. Ninarello, M. Ozawa, S. Yaida, *Proceedings of the National Academy of Sciences* **114**, 11356 (2017) [dataset]
13. “Exploring the jamming transition over a wide range of critical densities”  
M. Ozawa, L. Berthier, D. Coslovich, *SciPost Physics* **3**, 027 (2017)
14. “Models and Algorithms for the Next Generation of Glass Transition Studies”  
A. Ninarello, L. Berthier, D. Coslovich, *Physical Review X* **7**, 021039 (2017) [dataset]  
→ Highly Cited Paper in the Web of Science database.
15. “Two-dimensional systems with competing interactions: dynamic properties of single particles and of clusters”  
D. F. Schwanzer, D. Coslovich, G. Kahl, *Journal of Physics: Condensed Matter* **28**, 414015 (2016)
16. “Structure of inactive states of a binary Lennard-Jones mixture”  
D. Coslovich, R. L. Jack, *Journal of Statistical Mechanics: Theory and Experiment* **2016**, 074012 (2016) [dataset]
17. “Mean-field dynamic criticality and geometric transition in the Gaussian core model”  
D. Coslovich, A. Ikeda, K. Miyazaki, *Physical Review E* **93**, 042602 (2016)
18. “Equilibrium Sampling of Hard Spheres up to the Jamming Density and Beyond”  
L. Berthier, D. Coslovich, A. Ninarello, M. Ozawa, *Physical Review Letters* **116**, 238002 (2016)
19. “Structure and dynamics of coupled viscous liquids”  
A. Ninarello, L. Berthier, D. Coslovich, *Molecular Physics* **113**, 2707 (2015)
20. “Diverging viscosity and soft granular rheology in non-Brownian suspensions”  
T. Kawasaki, D. Coslovich, A. Ikeda, L. Berthier, *Physical Review E* **91**, 012203 (2015)
21. “Nonlinear dynamic response of glass-forming liquids to random pinning”  
W. Kob, D. Coslovich, *Physical Review E* **90**, 052305 (2014)
22. “Correlation of Local Order with Particle Mobility in Supercooled Liquids Is Highly System Dependent”  
G. M. Hocky, D. Coslovich, A. Ikeda, D. R. Reichman, *Physical Review Letters* **113**, 157801 (2014)
23. “Novel approach to numerical measurements of the configurational entropy in supercooled liquids”  
L. Berthier, D. Coslovich, *Proceedings of the National Academy of Sciences* **111**, 11668 (2014)
24. “Static triplet correlations in glass-forming liquids: A molecular dynamics study”  
D. Coslovich, *The Journal of Chemical Physics* **138**, 12A539 (2013)  
→ Invited contribution to the special issue “Glass transition”
25. “Cluster and reentrant anomalies of nearly Gaussian core particles”  
D. Coslovich, A. Ikeda, *Soft Matter* **9**, 6786 (2013)  
→ Invited contribution to the topical issue “2013 Emerging Investigators in Soft Matter”
26. “Cluster glasses of ultrasoft particles”  
D. Coslovich, M. Bernabei, A. J. Moreno, *The Journal of Chemical Physics* **137**, 184904 (2012)

27. "Finite-size effects in the dynamics of glass-forming liquids"  
L. Berthier, G. Biroli, D. Coslovich, W. Kob, C. Toninelli, *Physical Review E* **86**, 031502 (2012)
28. "Dynamic arrest of colloids in porous environments: disentangling crowding and confinement"  
J. Kurzidim, D. Coslovich, G. Kahl, *Journal of Physics: Condensed Matter* **23**, 234122 (2011)
29. "Effective interactions between oppositely charged polyelectrolytes in the presence of salt"  
J.-P. Hansen, D. Coslovich, G. Kahl, *Molecular Physics* **109**, 2953 (2011)
30. "Locally preferred structures and many-body static correlations in viscous liquids"  
D. Coslovich, *Physical Review E* **83**, 051505 (2011)
31. "Hopping and microscopic dynamics of ultrasoft particles in cluster crystals"  
D. Coslovich, L. Strauss, G. Kahl, *Soft Matter* **7**, 2127 (2011)
32. "Ultrasoft primitive model of polyionic solutions: Structure, aggregation, and dynamics"  
D. Coslovich, J.-P. Hansen, G. Kahl, *The Journal of Chemical Physics* **134**, 244514 (2011)
33. "Clustering, conductor-insulator transition and phase separation of an ultrasoft model of electrolytes"  
D. Coslovich, J.-P. Hansen, G. Kahl, *Soft Matter* **7**, 1690 (2011)
34. "Heterogeneous slow dynamics and the interaction potential of glass-forming liquids"  
D. Coslovich, C.M. Roland, *Journal of Non-Crystalline Solids* **357**, 397 (2011)
35. "Correlation of nonexponentiality with dynamic heterogeneity from four-point dynamic susceptibility  $\chi_4(t)$  and its approximation  $\chi_T(t)$ "  
C. M. Roland, D. Fragiadakis, D. Coslovich, S. Capaccioli, K. L. Ngai, *The Journal of Chemical Physics* **133**, 124507 (2010)
36. "Impact of random obstacles on the dynamics of a dense colloidal fluid"  
J. Kurzidim, D. Coslovich, G. Kahl, *Physical Review E* **82**, 041505 (2010)
37. "Effects of porous confinement on the structural properties of the Gaussian core model"  
D. F. Schwanzer, D. Coslovich, J. Kurzidim, G. Kahl, *Molecular Physics* **107**, 433 (2009)
38. "Single-Particle and Collective Slow Dynamics of Colloids in Porous Confinement"  
J. Kurzidim, D. Coslovich, G. Kahl, *Physical Review Letters* **103**, 138303 (2009)
39. "Pressure-energy correlations and thermodynamic scaling in viscous Lennard-Jones liquids"  
D. Coslovich, C. M. Roland, *The Journal of Chemical Physics* **130**, 014508 (2009)
40. "Density scaling in viscous liquids: From relaxation times to four-point susceptibilities"  
D. Coslovich, C. M. Roland, *The Journal of Chemical Physics* **131**, 151103 (2009)
41. "Dynamics and energy landscape in a tetrahedral network glass-former: direct comparison with models of fragile liquids"  
D. Coslovich, G. Pastore, *Journal of Physics: Condensed Matter* **21**, 285107 (2009)
42. "Thermodynamic Scaling of Diffusion in Supercooled Lennard-Jones Liquids"  
D. Coslovich, C. M. Roland, *Journal of Physical Chemistry B* **112**, 1329 (2008)
43. "Understanding fragility in supercooled Lennard-Jones mixtures. I. Locally preferred structures"  
D. Coslovich, G. Pastore, *The Journal of Chemical Physics* **127**, 124504 (2007)
44. "Understanding fragility in supercooled Lennard-Jones mixtures. II. Potential energy surface"  
D. Coslovich, G. Pastore, *The Journal of Chemical Physics* **127**, 124505 (2007)
45. "Are there localized saddles behind the heterogeneous dynamics of supercooled liquids?"  
D. Coslovich, G. Pastore, *Europhys. Lett.* **75**, 784 (2006)

#### INVITED TALKS AT CONFERENCES

1. "Unsupervised learning of amorphous structure" ..... 2023  
First International Workshop on Complex Glasses, Warsaw (Poland)
2. "Quantitative tests of the dynamic crossover scenario in glassy liquids" ..... 2023  
International Discussion Meeting on Relaxation in Complex Systems 9th, Chiba (Japan)
3. "Machine learning glasses: What do humans learn?" ..... 2023  
Viscous Liquids and the Glass Transition XIX, Holbaek (Denmark)
4. "Dimensionality reduction of structure in glassy liquids" ..... 2022  
Machine Learning Glassy Dynamics, Collège de France (France)

5. “Glass structure through the prism of clustering” .....2021  
Glassy Systems and Inter-Disciplinary Applications, Institut d’Etudes Scientifiques de Cargèse (France)
6. “Distributional clustering approach to the heterogeneity of supercooled liquids” .....2021  
Digital meeting - Recent advances on the glass problem, CECAM (Switzerland)
7. “A new characteristic temperature for glassy dynamics” .....2019  
Viscous Liquids and the Glass Transition (XVI), Holbaek (Denmark)
8. “Towards a coherent picture of the mode-coupling glass crossover” .....2019  
The Physical Society of Japan 2019 Annual (74th) Meeting, Fukuoka (Japan)
9. “Dynamic crossover in glass-forming liquids: Insights from multi-GPU simulations” .....2018  
Viscous Liquids and the Glass Transition (XV), Holbaek (Denmark)
10. “Probing the laboratory glass transition with swap Monte Carlo simulations” .....2017  
Workshop on Glass Transition and Active Matter, Strasbourg (France)
11. “Equilibrium simulations of supercooled liquids beyond the laboratory glass transition” .....2017  
CECAM workshop ”Recent Advances on the Glass and Jamming Transitions”, Lausanne (Switzerland)
12. “Non-universal role of local structure around the dynamic crossover” .....2015  
CECAM workshop ”The role of local structure in dynamic arrest”, Mainz (Germany)
13. “The dynamic crossover - insights from numerical simulations” .....2015  
Viscous Liquids and the Glass Transition (XIII), Holbaek (Denmark)
14. “Quantifying structure-dynamics correlations in glassy systems” .....2014  
Viscous Liquids and the Glass Transition. XII, Holbaek (Denmark)
15. “Gaussian particles at high density: local structure and slow dynamics” .....2013  
7th International Discussion Meeting on Relaxations in Complex Systems, Barcelona (Spain)
16. “Ultrasoft primitive model of polyelectrolytes in solution” .....2011  
32nd International Conference on Solution Chemistry, La Grande Motte (France)
17. “Amorphous order and unstable modes in close-packed and network glasses” .....2010  
COST Workshop on Physics of Amorphous Solids, Les Houches (France)
18. “Strongly correlating liquids and density scaling of the dynamics” .....2009  
International Discussion Meeting on Relaxation in Complex Systems 6th, Rome (Italy)
19. “Density scaling of the dynamics and pressure-energy correlations in fragile glass-formers” .....2009  
Viscous Liquids and the Glass Transition VII, Holbaek (Denmark)
20. “Linking slow dynamics and local structure in simple models of glass-forming liquids” .....2008  
15th International Congress on Rheology, Monterey (U.S.)

## CONTRIBUTED TALKS AT CONFERENCES

1. “Unsupervised learning and intrinsic dimension of amorphous structure” .....2024  
12th Liquid Matter Conference, Mainz (Germany)
2. “Unsupervised learning of structure in glassy binary mixtures” .....2022  
Disorder’s Role in Glass Formation and Deformation, Lorentz Center (Netherlands)
3. “Clear-cut determination of the mode-coupling crossover in glass-forming liquids” .....2019  
Journées de Physique Statistique 2019, Paris (France)
4. “Does swap Monte Carlo accelerate nucleation more than structural relaxation?” .....2018  
Unifying Concepts in Glass Physics VII, Bristol (U.K.)
5. “Catching up with experiments: Simulations of supercooled liquids beyond laboratory time scales” .2017  
10th Liquid Matter Conference, Ljubljana (Slovenia)
6. “Static sources of dynamic fluctuations in glass-formers” .....2016  
Statphys 26, Lyon (France)
7. “Local structure and dynamic heterogeneity: do they correlate?” .....2015  
Unifying Concepts in Glass Physics VI, Aspen (U.S.)
8. “Probing length scales in viscous liquids by random pinning” .....2013  
2nd International Workshop on Nonlinear Response in Complex Matter, Erlangen (Germany)

9. “*Many-body static correlations and fragility of viscous liquids*” .....2011  
Unifying concepts in glass physics V, Paris (France)
10. “*Slow dynamics in cluster crystals and cluster glasses*” .....2011  
International Workshop on Dynamics in Viscous Liquids, Rome (Italy)
11. “*Understanding fragility in supercooled liquids: locally preferred structures and energy landscape*” .2007  
CECAM Workshop “Glasses meet glasses”, Lyon (France)
12. “*Dynamical heterogeneities and localized saddles in supercooled Lennard-Jones mixtures*” .....2006  
CCP5 Summer Schhol 2006, Cardiff (U.K.)

## SEMINARS

1. “*Machine learning glassy dynamics: What do humans learn?*” .....2024  
SISSA, Trieste (Italy)
2. “*Towards understanding glassy dynamics: from physical theories to machine learning*” .....2023  
International Center for Theoretical Physics (ICTP), Trieste (Italy)
3. “*Recent breakthroughs in the glass transition problem*” .....2023  
Department of Mathematics and Physics, Università di Roma Tre, Rome (Italy)
4. “*Dynamic crossover and localization transition in glassy liquids*” .....2023  
Department of Applied Physics, Eindhoven University of Technology, Eindhoven (Netherlands)
5. “*Statistical inference of structural communities in supercooled liquids*” .....2020  
Laboratoire de Physiques de Solides, Université Paris-Sud, Paris (France)
6. “*Structural communities*” .....2019  
Meeting of the Simons collaboration “Cracking the glass problem”, Royaumont (France)
7. “*A sharper view of glass formation*” .....2019  
Department of Basic Science, University of Tokyo, Tokyo (Japan)
8. “*Dynamic and thermodynamic crossovers on the way to glass formation*” .....2019  
Department of Physics, University of Nagoya, Nagoya (Japan)
9. “*Equilibrium simulations of supercooled liquids beyond laboratory time scales*” .....2017  
University of Bristol, Bristol (United Kingdom)
10. “*HPC and atomistic simulations*” .....2016  
HPC@LR computing center, University of Montpellier, Montpellier (France)
11. “*Disks, spheres and hyper-spheres: from order to disorder in condensed matter*” .....2016  
Colloquium Alumnorum, University of Trieste, Trieste (Italy)
12. “*Structure-dynamics relationship in glass-forming liquids*” .....2013  
Roskilde University, Roskilde (Denmark)
13. “*Structural motifs, heterogeneity and dynamics in glassy systems*” .....2010  
Jozef Stefan Institute, Ljubljana, (Slovenia)
14. “*Amorphous order and dynamic heterogeneity in glass-forming liquids*” .....2010  
Laboratoire des Colloïdes, Verres et Nanomatériaux, Montpellier (France)
15. “*Snapshots of glassy energy landscapes*” .....2009  
Vienna University, Vienna (Austria)
16. “*Close-packed and network-forming glasses: Two distinct universality classes?*” .....2009  
Science College Seminar, Vienna (Austria)
17. “*Localized saddles and dynamic heterogeneities in supercooled liquids*” .....2006  
Van t Hoff Institute, Amsterdam (The Netherlands)

## ACADEMIC SERVICE

- Member of hiring committee for tenure-track researcher (RTT) .....2023  
Università di Roma La Sapienza
- System administration of HPC cluster .....2022–  
Theory and Simulation of condensed matter group, University of Trieste

- International relations delegate ..... 2022–  
Department of Physics, University of Trieste
- Coordinator of seminars' organization ..... 2022–  
Department of Physics, University of Trieste
- Member of Ph.D. board ..... 2021–  
Ph.D. in Applied Data Science and Artificial Intelligence, University of Trieste
- Member of hiring committee for associate professor ..... 2021  
University of Trieste
- Member of hiring committee for senior post-doc (RTDa) ..... 2021  
University of Trieste
- Member of admission committee for the Collegio "Luciano Fonda" ..... 2020  
Collegio "Luciano Fonda", University of Trieste
- Member of Ph.D. hiring committee ..... 2019  
École doctorale I2S, University of Montpellier
- Head of the "Statistical Physics" group at the Charles Coulomb Laboratory ..... 2016–2019  
University of Montpellier
- Member of "comité de section" (expert pool) CNU 28 ..... 2017–  
University of Montpellier

## CONFERENCES' ORGANIZATION

- Member of programme committee, "International Workshop on Dynamics in Viscous Liquids" ... 2015  
Montpellier (France)
- Co-organizer of mini-colloquium "Fluids in confinement in and out of equilibrium" ..... 2014  
Journées de la Matière Condensée 14, Paris (France)
- Co-organizer of "Complex dynamics of fluids in disordered and crowded environments" ..... 2010  
CECAM workshop, Lyon (France)  
*Workshop proceedings: J. Phys.: Condens. Matter 23, 230302 (2011)*

## REFEREEING

### ▪ Referee for peer-review journals:

Communications Physics  
 European Journal of Physics B  
 Journal of Chemical Physics  
 Journal of Non-Crystalline Solids  
 Journal of Physical Chemistry B  
 Journal of Physics: Condensed Matter  
 Journal of Statistical Mechanics  
 Nature Communications  
 Nature Physics  
 Physical Review B  
 Physical Review E  
 Physical Review Letters  
 Physical Review Research  
 Physical Review X  
 Proceedings of the National Academy of Sciences  
 Soft Matter  
 Science Advances  
 Scientific Reports  
 SciPost Physics

### ▪ Reviewer for research funding agencies:

Agence Nationale de la Recherche (ANR, French national research agency)  
 Deutsche Forschungsgemeinschaft (DFG, German national funding agency)

Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO, Dutch Research Council)  
Swiss National Science Foundation (SNSF)  
Natural Sciences and Engineering Research Council of Canada (NSERC)  
Université franco-allemande (France-Germany)  
Fondo Sociale Europeo, Regione Friuli Venezia-Giulia (Italy)  
Programma "Rita Levi Montalcini" (MIUR, Italian Ministry of University and Research)  
Labex PALM, Paris-Saclay (France)

## **PARTICIPATION TO PH.D. COMMITTEES**

- Cesare Malosso, SISSA (Italy) ..... 2024
- Edward Donkor, SISSA (Italy) ..... 2024
- Chengjie Luo, Eindhoven University of Technology (Netherlands) ..... 2023
- Vinay Vaibhav, The Institute of Mathematical Sciences, Chennai (India) ..... 2022
- Zeno Filiberti, Università dell'Insubria (Italy) ..... 2021
- Susana Marín Aguilar, Université Paris-Sud (France) ..... 2020
- Thomas Konincks, Ecole Normale Supérieure de Lyon (France) ..... 2017
- Céline Ruscher, Université de Strasbourg (France) ..... 2017
- Rhiannon Pinney, University of Bristol (U.K.) ..... 2017
- Lorenzo Costigliola, Roskilde University (Denmark) ..... 2016
- Marco Bernabei, Universidad del Pais Vasco, San Sebastian (Spain) ..... 2011



# Teaching

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Between 2010 and 2020, I taught at the Faculté de Sciences at the **University of Montpellier**, both at the Licence (L) and Master (M) level. Since 2020, I am teaching at the **University of Trieste**, also at the PhD level. Taught topics include: classical mechanics, thermodynamics, waves, dynamical systems, disordered systems, molecular simulations, parallel computing, code optimization, software management. I gave several tutorials on tools for computational physics, high-performance computing and reproducible research.

## COURSES

### 2023-2024

- Modern tools for computational physics (PhD) ..... 12h
- Fisica dei sistemi disordinati (M) ..... 48h
- Laboratorio di simulazioni atomistiche e molecolari (M) ..... 72h
- Strumenti informatici per la fisica (M) ..... 15h

### 2022-2023

- Modern tools for computational physics (PhD) ..... 8h
- Fisica dei sistemi disordinati (M) ..... 48h
- Introduzione alla fisica (L) ..... 72h

### 2021-2022

- Fisica dei sistemi disordinati (M) ..... 48h
- Introduzione alla fisica (L) ..... 72h

### 2020-2021

- Fisica dei sistemi disordinati (M) ..... 48h
- Introduzione alla fisica (L) ..... 72h

### 2019-2020

- Simulations atomistiques avancées (M) ..... 15 h (CM), 12 h (TP)
- Modélisation et Algorithmique 2 (L) ..... 9h (CM), 22 h (TP)
- Thermodynamique 2 (L) ..... 9 h (CM), 24 h (TD)
- Introduction à la physique quantique (L) ..... 21 h (TD)
- Physique générale (L) ..... 21 h (TD)
- Physique pour la Biologie (L) ..... 9 h (TP)

### 2018-2019

- Simulations atomistiques avancées (M) ..... 15 h (CM), 15 h (TP)
- Modélisation et Algorithmique 2 (L) ..... 9h (CM), 25.5 h (TP)
- Thermodynamique 2 (L) ..... 9 h (CM), 27 h (TD)
- Physique générale (L) ..... 48 h (TD)
- Physique pour la Biologie (L) ..... 9 h (TP)

### 2017-2018

- Simulations atomistiques avancées (M) ..... 15 h (CM), 15 h (TP)
- Modélisation et Algorithmique 2 (L) ..... 25.5 h (TP)
- Thermodynamique 2 (L) ..... 9 h (CM), 30 h (TD)
- Physique pour la Biologie (L) ..... 6 h (TP)

### 2016-2017

- Simulations atomistiques avancées (M) ..... 15 h (CM), 15 h (TP)
- Modélisation et Algorithmique 2 (L) ..... 25.5 h (TP)
- Thermodynamique 2 (L) ..... 9 h (CM), 30 h (TD)
- Physique pour la Biologie (L) ..... 9 h (TP)

## 2015-2016

- Simulations atomistiques avancées (M) ..... 15 h (CM), 17.5 h (TP)
- Modélisation et Algorithmique 2 (L) ..... 25.5 h (TP)
- Thermodynamique 2 (L) ..... 9 h (CM), 15 h (TD)
- Physique pour la Biologie (L) ..... 9 h (TP)

## 2014-2015

- Grille et optimisation (M) ..... 12 h (CM), 21 h (TP)
- Simulation des propriétés physiques des matériaux (M) ..... 3 h (CM), 5 h (TP)
- Modélisation et Algorithmique 2 (L) ..... 25.5 h (TP)
- Thermodynamique (L) ..... 24 h (CM), 25.5 h (TD)

## 2013-2014

- Grille et optimisation (M) ..... 9 h (CM), 3 h (TD), 12 h (TP)
- Simulation des propriétés physiques des matériaux (M) ..... 5 h (CM), 5 h (TP)
- Modélisation algorithmique en physique (L) ..... 25.5 h (TP)
- Thermodynamique Physique (L) ..... 24 h (CM), 25.5 h (TD)

## 2012-2013

- Grille et optimisation (M) ..... 9 h (CM), 3 h (TD), 12 h (TP)
- Simulation des propriétés physiques des matériaux (M) ..... 5 h (CM), 5 h (TP)
- Thermodynamique Physique (L) ..... 24 h (CM), 25.5 h (TD)

## 2011-2012

- Simulation des propriétés physiques des matériaux (M) ..... 5 h (CM), 5 h (TP)
- Grille et optimisation (M) ..... 3 h (CM), 3 h (TP)
- Modélisation algorithmique en physique (L) ..... 25.5 h (TP)
- Dynamique newtonienne A (L) ..... 42 h (TD)
- Dynamique newtonienne B (L) ..... 30 h (TD)
- Thermodynamique et énergie (L) ..... 51 h (TD)
- Clés et outils pour l'environnement 2 (L) ..... 9 h (CM), 33 h (TD)

## 2010-2011

- Simulation des propriétés physiques des matériaux (M) ..... 4.5 h (TP), 6h (CM)
- Physique Expérimentale (L) ..... 34 h (TP), 33h (TD)
- Thermodynamique Physique (L) ..... 51h (TD)

## TEACHING IN FOREIGN INSTITUTIONS

- Lab session on "Molecular Dynamics / Glasses" (3h) ..... 20/09/2015  
DPG School on Computational Physics of Complex and Disordered Systems, Bad Honnef (Germany)
- Lab session "Python for physicists" on the Python language (3h) ..... 19/03/2019  
Department of Physics, University of Tokyo (Japan)

## TEACHING SERVICE

- Coordinator of the teaching committee on thermodynamics and statistical physics courses ..... 2019  
Département d'enseignement de Physique, University of Montpellier
- Teaching supervisor of the 2nd year of Physics ("responsable d'année") ..... 2015–2020  
University of Montpellier
- Member of the teaching committee to organize Physics courses ..... 2013  
Département d'enseignement de Physique, University of Montpellier

## STUDENTS' SUPERVISION

### Ph.D. students

- Michele Matteucci, University of Trieste ..... 2024–
- Marco Dirindin, University of Trieste ..... 2023–
- Leonardo Galliano, University of Trieste ..... 2023–
- Joris Paret, University of Montpellier ..... 2018–2021
- Andrea Ninarello (co-supervisor), University of Montpellier ..... 2014–2017
- Pascal Nadal (co-supervisor), University of Montpellier ..... 2013–2016

**Master students**

- Michele Matteucci, Laurea magistrale in Fisica della Materia, University of Trieste ..... 2024
- Marco Dirindin, Laurea magistrale in Fisica della Materia, University of Trieste ..... 2022
- Riccardo Rende, Laurea magistrale in Fisica della Materia, University of Trieste ..... 2021
- Cyril Santi, Master Nanophysique, University of Montpellier ..... 2019
- Florian Garcin, Master Physique et Ingénierie du Vivant, University of Montpellier ..... 2019
- Athina Monemvassitis, Ecole Normale Supérieure, Lyon ..... 2018
- Dwight Smite, Master Physique-Informatique, University of Montpellier ..... 2014
- Pascal Nadal, Master Physique-Informatique, University of Montpellier ..... 2013
- Lukas Strauss, Master, Institut für Theoretische Physik, TU Wien ..... 2009

**Licence students (projects, internships)**

- Giovanni Lucarelli, Department of Physics, University of Trieste ..... 2024
- Iacopo Ricci, Department of Physics, University of Trieste ..... 2023
- Joumana Badran, Guilhem Charmasson, Licence de Physique, University of Montpellier ..... 2019
- Joris Paret, Bastien Vincent, Licence de Physique, University of Montpellier ..... 2015
- Sacha Foschino, Flavien Perez, Saida Righi, Licence de Physique, University of Montpellier ..... 2014