



Francesco Delfino

[REDACTED]
[REDACTED]
delfino@cbs.cnrs.fr
[REDACTED]
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Education

PhD in Physics / University of Pisa

NOVEMBER 2014 - OCTOBER 2017, PISA (IT)

Thesis: "Scaling properties of three-dimensional Bose-Einstein condensed gases"

Supervisor: E. Vicari

Graduation date: 5 March 2018

Master degree in Physics / University of Pisa

SEPTEMBER 2012 - SEPTEMBER 2014, PISA (IT)

Thesis: "Critical behaviour in the $CP^{(N-1)}$ model"

Supervisor: E. Vicari

Graduation date: 29 September 2014

Grade: 110/110 cum laude

Bachelor degree in Physics / University of Pisa

SEPTEMBER 2009 - SEPTEMBER 2012, PISA (IT)

Graduation date: 20 September 2012

Grade: 110/110 cum laude

Employment

Postdoctoral Research Associate / Centre de Biologie Structurale (CBS)

OCTOBER 2019 - PRESENT, MONTPELLIER (FR)

Project: Modeling liquid-liquid phase separation in cellular environment: investigation of the phase diagram and non-equilibrium states of biomolecular condensates by means of molecular dynamics simulations integrating chemical reactions.

Supervisor: A. Barducci

24/05/2021



Postdoctoral Research Associate / I.M. Sechenov First Moscow State Medical University and NEST (CNR)

MAY 2018 - SEPTEMBER 2019, PISA (IT)

Project: Conformation dynamics of proteins, a comparative study with different resolution models and different sampling methods.

Supervisor: Y. Porozov and V. Tozzini

Research Associate / University of Pisa

NOVEMBER 2017 - APRIL 2018, PISA (IT)

Project: Condensation phenomena in many-body systems.

Supervisor: E. Vicari

Teaching experience

Teaching assistant / University of Pisa

OCTOBER 2015 - FEBRUARY 2016, PISA (IT)

Course: Theoretical Physics 1 (master's degree in physics)

Teaching assistant / University of Pisa

OCTOBER 2014 - FEBRUARY 2015, PISA (IT)

Course: Physics with elements of mathematics (bachelor's degree in herbal medicine)

Languages

Mother tongue

Italian

Other languages

English, C1 level (Certificate in Advanced English in 2019)

French, B1 level

Computing skills

Programming/Scripting languages: Bash, C, Python, Tcl

Operating systems: Linux, macOS, MS Windows

Scientific software: DL_Poly, Mathematica, Numpy, Pandas, ReaDDy, Scikit-learn, Scipy, VMD

Databases: MySQL, SQL

Utility software: Latex, Office

24/05/2021



List of
publications

"In silico design, building and gas adsorption of nano-porous graphene scaffolds"

L. Bellucci, F. Delfino and V. Tozzini, 2020

Nanotechnology 32, 045704

Doi: 10.1088/1361-6528/abbe57

<https://iopscience.iop.org/article/10.1088/1361-6528/abbe57>

"Evolutionary Switches structural transitions via coarse-grained models"

F. Delfino, Y. Porozov, E. Stepanov, G. Tamazian and V. Tozzini, 2019

J. Comput. Biol. 27, 2

Doi: 10.1089/cmb.2019.0338

<https://www.liebertpub.com/doi/abs/10.1089/cmb.2019.0338>

"Structural transition states explored with minimalist coarse grained models: applications to Calmodulin"

F. Delfino, Y. Porozov, E. Stepanov, G. Tamazian and V. Tozzini, 2019

Front. Mol. Biosci. 6, 104

Doi: 10.3389/fmolb.2019.00104

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6843051/>

"Scaling properties of three-dimensional Bose-Einstein condensed gases"

F. Delfino, 2018

PhD thesis

Urn: etd-03012018-143244

<https://etd.adm.unipi.it/theses/available/etd-03012018-143244/>

"Dimensional crossover of Bose-Einstein condensation phenomena in quantum gases confined within slab geometries"

F. Delfino and E. Vicari, 2017

Phys. Rev. A 96, 043623

Doi: 10.1103/PhysRevA.96.043623

<https://journals.aps.org/pr/abstract/10.1103/PhysRevA.96.043623>

"Critical behavior at the spatial boundary of a trapped inhomogeneous Bose-Einstein condensate"

F. Delfino and E. Vicari, 2017

Phys. Rev. A 95, 053606

Doi: 10.1103/PhysRevA.95.053606

<https://journals.aps.org/pr/abstract/10.1103/PhysRevA.95.053606>

"Shape dependence and anisotropic finite-size scaling of the phase coherence of three-dimensional Bose-Einstein-condensed gases"

G. Ceccarelli, F. Delfino, M. Mesiti and E. Vicari, 2016

Phys. Rev. A 94, 053609

Doi: 10.1103/PhysRevA.94.053609

<http://journals.aps.org/pr/abstract/10.1103/PhysRevA.94.053609>

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“Three-dimensional antiferromagnetic CP^(N-1) models”

F. Delfino, A. Pelissetto, and E. Vicari, 2015

Phys. Rev. E 91, 052109

Doi: 10.1103/PhysRevE.91.052109

<http://journals.aps.org/pre/abstract/10.1103/PhysRevE.91.052109>

“Critical behaviour in the CP^(N-1) model”

F. Delfino, 2014

Master thesis

Urn: etd-09012014-155056

<https://etd.adm.unipi.it/theses/available/etd-09012014-155056/>

In preparation

“Modeling actively regulated cellular condensates”

F. Delfino, L. Ciandrini and A. Barducci, 2021

**Conferences
and seminars**

**“Scaling properties of Bose-Einstein condensed gases ” - invited talk at Centre de
Biologie Structurale de Montpellier**

18 JULY 2019, MONTPELLIER (FR)

**“Evolutionary switches structural transition states explored with minimalist
coarse grained models” - talk at International Symposium on Bioinformatics**

Research and Applications, Technical University of Catalonia

3-6 JUNE 2019, BARCELONA (ES)

**“ Exploring the transition path between proteins states via a multiscale
approach” - poster at Young Researcher’s Workshop on Machine Learning for
Materials Science**

6-10 MAY 2019, AALTO UNIVERSITY, HELSINKI (FI)

**“A combined molecular dynamics-variational multi-scale method to explore the
transition paths between proteins states” - poster at Multiscale Modeling from
Macromolecules to Cell: Opportunities and Challenges of Biomolecular
Simulations, EPFL**

4-6 FEBRUARY 2019, LAUSANNE (CH)

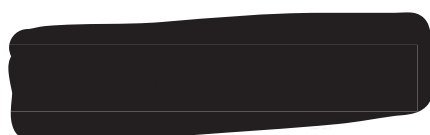
**“Phase coherence properties of three-dimensional ultracold bosonic gases” -
poster at From Static to Dynamical Gauge Fields with Ultracold Atoms, GGI**

22 MAY - 23 JUNE 2017, FIRENZE (IT)

**“Scaling properties of three-dimensional Bose-Einstein condensed gases” -
invited talk at department of mathematical physics, University of Roma Tre**

12 APRIL 2017, ROMA (IT)

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“Shape dependence of the phase coherence of three-dimensional Bose-Einstein condensed gases” - poster at Current Trends in Atomic Physics, Les Houches Physics School
4-29 JULY 2016, LES HOUCHES (FR)

Schools

Young Researcher’s Workshop on Machine Learning for Materials Science

6-10 MAY 2019, AALTO UNIVERSITY, HELSINKI (FI)

Les Houches Summer School: Current Trends in Atomic Physics

4-29 JULY 2016, LES HOUCHES (FR)

GGI school: Lectures on Statistical Field Theories 2016

8-19 FEBRUARY 2016, GGI, FIRENZE (IT)

GGI school: Lectures on Statistical Field Theories 2015

2-13 FEBRUARY 2015, GGI, FIRENZE (IT)

26/05/2021

