

# DANIELE DIMONTE

(+39) 388 892 3954  $\diamond$  (+39) 040 3787 857  $\diamond$  ddimonte@sissa.it  
Office address: room 728, 265 Bonomea Rd, 34136 Trieste (TS), Italy  
Personal address: 3 Quinto Baieno Str, 34127 Trieste (TS), Italy

## CURRENT POSITION

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**Ph.D Student in Geometry and Mathematical Physics** *2015 - Today*

SISSA, Mathematical Sector, Trieste (Italy)

*Research Interests*                      Effective theories for many-body quantum systems  
and vortices in Bose-Einstein condensates

*Supervisor*                                      Michele Correggi

*Expected Defence Date*                      September 2019

IAMP Member *2017 - Today*

GNFM Member *2016 - Today*

## EDUCATION

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**Master Degree in Mathematics** *2012 - 2015*

‘Sapienza’ University - Department of Mathematics, Rome (Italy)

Thesis Title                                      **Giant Vortices in Rotating Bose-Einstein Condensates**

Advisor    **Michele Correggi**

Date of dissertation                              **27/01/2015**

Final Grading                                      **110/110 cum laude**

**Bachelor Degree in Mathematics** *2009 - 2012*

‘Roma Tre’ University - Department of Mathematics, Rome (Italy)

Date    **18/07/2012**

Final Grading                                      **110/110 cum laude**

**Scientific Secondary School Diploma** *2004 - 2009*

Liceo Scientifico P. Ruffini, Viterbo (Italy)

Final Grading                                      **83/100**

## FUNDINGS

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**GNFM** *2018*

participant at ‘Progetto Giovani’: **“Two-dimensional Quantum Phases”**

(4 participants, € 4.000)

**GNFM** *2016*

participant at ‘Progetto Giovani’: **“Superconductivity and Superfluidity”**

(3 participants, € 5.000)

## AWARDS

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- SISSA** 2015  
Research training fellowship for post-graduate students, Trieste (Italy), *June-July 2015*
- ‘Sapienza’ University of Rome** 2012  
‘Wanted the Best’ fellowship for students coming from different universities with degree 110/110 cum laude, Roma (Italy)
- INdAM** 2009  
Fellowship for students in mathematics, Roma (Italy)
- ‘Roma Tre’ University** 2009  
Fellowship award for the entrance test, Roma (Italy)

## PUBLISHED ARTICLE

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- On the third Critical Speed for Rotating Bose-Einstein Condensates**  
joint work with Michele Correggi, *J. Math. Phys.* **57** (2016), 071901

## TALKS (\* FUNDED FROM THE ORGANIZERS)

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- Effective Dynamics of BEC in the Thomas-Fermi Limit\*** 27 June 2018  
*Mathematical Physics seminar*,  
‘Sapienza’ University, Roma (Italy)
- Phase transitions for a rotating BEC: the third critical speed\*** 19-24 February 2018  
*Mathematical Challenges in Quantum Mechanics\**, MCQM2018  
‘Sapienza’ University, Roma (Italy)
- Dynamics of a N-body Vortex State in a Bose-Einstein Condensate\*** 4-6 May 2017  
*Assemblea Scientifica GNFM 2017*, GNFM  
Montecatini Terme (Italy)
- Energy asymptotics for a fast rotating Bose-Einstein Condensate** 28 March 2017  
*AMPQ Seminar*,  
SISSA, Trieste (Italy)
- Critical Speeds for Rotating Bose-Einstein Condensates\*** 1-4 November 2016  
*Mathematical Foundations of Physics*, Mathematical Institute LMU  
Munich (Germany)
- Giant vortex state in fast rotating Bose-Einstein Condensates\*** 8-10 July 2015  
*Trails in Quantum Mechanics and Surroundings 2015*, Cond-Math  
‘Insubria’ University, Como (Italy)

## POSTER

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- many-body Vortex Dynamics in a Bose-Einstein Condensate** 3-7 April 2017  
*Spectral Days 2017*, Universität Stuttgart  
Munich (Germany)

## CONFERENCES (\* FUNDED FROM THE ORGANIZERS)

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- GSQM: from many particle systems to quantum fluids\*** 28 November-1 December 2018  
GSSI, L’Aquila (Italy)

<b>Trails in Quantum Mechanics and Surroundings</b> Politecnico di Torino, Torino (Italy)	27-29 September 2018
<b>ICMP 2018</b> Montréal, Québec (Canada)	23-28 July 2018
<b>Young Researcher Symposium 2018</b> Montréal, Québec (Canada)	20-21 July 2018
<b>Mathematical Challenges in Quantum Mechanics 2018</b> 'Sapienza' University, Roma (Italy)	19-24 February 2018
<b>Trials in Quantum Mechanics and Surroundings</b> SISSA, Trieste (Italy)	29-30 January 2018
<b>Harmonic Analysis, Spectral Theory and PDE's</b> 'Sapienza' University, Roma (Italy)	12-15 September 2017
<b>Summer School on Current Topics in Mathematic Physics*</b> Universität Zürich, Zürich (Switzerland)	17-21 July 2017
<b>Quantum Mean Field and Related Problems</b> LAGA, Université de Paris 13, Paris (France)	5-7 July 2017
<b>Spectral Days 2017</b> Universität Stuttgart, Stuttgart (Germany)	3-7 April 2017
<b>Macroscopic Limits of Quantum Systems</b> TUM, München (Germany)	30 March-1 April 2017
<b>Trieste Quantum Days 2017</b> SISSA, Trieste (Italy)	20-24 February 2017
<b>Mathematical Challenges of Zero-Range Physics</b> SISSA, Trieste (Italy)	7-10 November 2016
<b>Frontiers in Mathematical Physics*</b> <i>Centre de Recherches Mathématiques</i> Université de Montréal, Montréal, Québec (Canada)	28 August-1 September 2016
<b>Conference on Methods of Modern Mathematical Physics*</b> <i>Fields Institute</i> Toronto, Ontario (Canada)	22-26 August 2016
<b>EMS-IAMP Summer School in Mathematical Physics</b> 'Sapienza' University, Roma (Italy)	11-15 July 2016
<b>Contemporary Trends in the Mathematics of Quantum Mechanics*</b> <i>INdAM</i> Roma (Italy)	4-8 July 2016
<b>Trieste Quantum Days</b> SISSA, Trieste (Italy)	21-23 June 2016
<b>Solid Math 2016 Conference</b> Aalborg University, Aalborg (Denmark)	26-28 May 2016
<b>Mathematical Challenges in Quantum Mechanics*</b> Bressanone (Italy)	8-13 February 2016

<b>Eight Summer School in Analysis and Applied Mathematics</b> 'Sapienza' University, Roma (Italy)	15-19 June 2015
<b>The Mathematics of Topological Insulators in Naples</b> 'Federico II' University, Napoli (Italy)	2-5 February 2015
<b>Selected Problems in Mathematical Physics (SP2014)</b> La Spezia (Italy)	1-5 September 2014

## TEACHING EXPERIENCES

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**Tutoring activity for the Course of "Mathematical Analysis 4"** 2011-2012  
*'Roma Tre' University, Department of Mathematics, Rome (Italy)*

**Short Lectures** 2013-today

*'Paolo Ruffini' high school, Viterbo, Italy*

**2019** Dall'astratto al concreto: i numeri Reali (*in collaboration with E. Giacomelli*)

**2018** Da tante particelle a un modello efficace (*in collaboration with E. Giacomelli*)

**2016** I Problemi variazionali in natura (*in collaboration with E. Giacomelli*)

**2015** La bellezza del numero di Nepero e l'importanza delle definizioni

**2013** Verso l'infinito e oltre

## LANGUAGES

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Italian	<b>native speaker</b>
English	<b>very good command</b>
French	<b>basic communication skills</b>