

PERSONAL INFORMATION **Elena Blundo**CV APPLIED FOR **Tutorship Activity**

EDUCATION

Nov 2019 – Present **PhD student in Physics**

Sapienza, University of Rome

PhD student at the *Optical Spectroscopy of Nanostructured Materials laboratory* under the supervision of Prof. Antonio Polimeni.

The candidate research activity is focused on the study of the opto-electronic and mechanical properties of two-dimensional crystals. The candidate is currently investigating the effects of external perturbations in these systems, such as: hydrogen-irradiation, strain, magnetic fields.

Sep 2017 – Mar 2019 **Master's Degree in Physics**

Sapienza, University of Rome

Thesis: *Electronic properties of two-dimensional crystals under strain fields*, under the supervision of Prof. Antonio Polimeni.

Mark: 110/110 cum laude

The candidate accomplished her Master's Degree in 1 year and a half, in advance with respect to the 2-years legal duration.

Sep 2014 – Oct 2017 **Bachelor's Degree in Physics**

Sapienza, University of Rome

Thesis: *Mechanical deformations of two-dimensional materials*, under the supervision of Prof. Antonio Polimeni.

Mark: 110/110 cum laude

The candidate also accomplished the **Path of excellence of the Bachelor in Physics**.

a.y. 2013/2014 **Scientific high school diploma**

Liceo Scientifico Ettore Majorana, Rome

Mark: 100/100 cum laude

TEACHING AND TUTORSHIPS

a.y. 2019/20, II semester **Tutorship activity**

Physics Department of Sapienza, University of Rome

Tutorship activity in Bachelor's degree courses during the academic year 2019/2020. The candidate was a teaching assistant for the Mechanics Laboratory Course, helping in the preparation of the laboratory experiences and offering support during the exams.

a.y. 2018/19, I semester **Tutorship activity**

Physics Department of Sapienza, University of Rome

Tutorship activity concerning *support activities for Italian students attending courses in English, and having difficulties in the comprehension of the English language*.

ABROAD EXPERIENCES

Oct – Nov 2019 High Field Magnet Laboratory

During her first year as a PhD student, the candidate spent 2 weeks at the High Field Magnet Laboratory (HFML, in Nijmegen, The Netherlands). The HFML is an international facility which uses and develops high magnetic fields to carry out pioneering scientific research by in-house and external users. Fields up to 37.5 T are currently available there. The candidate performed magneto-optical measurements under high magnetic fields in semiconductor nanostructures.

GRANTS AND FUNDING

a.y. 2019/20 Funding

Sapienza, University of Rome
Avvio alla Ricerca 2020, € 1600.

Nov 2019 – Oct 2020 Research Grant

Sapienza, University of Rome; funding from Regione Lazio, Sinfonia Project
One-year Research Grant for the *Realisation and characterisation of quantum dots and optical circuits on semiconductors*.

AWARDS AND CONTESTS

2020 Communication selected among the *Best Communications* at the 106° national conference by the Italian Physical Society.

2019 First prize for the best oral communication at the 105° national conference (Physics of Matter section) by the Italian Physical Society.

a.y. 2019/20 Winner and ranked 1st in the contest for the PhD in Physics.

a.y. 2019/20 Winner and ranked 1st in the contest for the PhD in Mathematical Models for Engineering, Electromagnetics and Nanosciences.

REVIEW ACTIVITY

The candidate is a referee for the APS journals (Physical Review B and Physical Review Materials).

ATHLETIC CAREER

The candidate is also a Taekwondo Poomsae and Freestyle athlete, III dan. The candidate has been an International player of the National Team Italy since 2010 and has conquered numerous medals at European and World competitions (the palmares will be shown below). She is also a coach and national referee.

PERSONAL SKILLS

Mother tongue Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
[Common European Framework of Reference for Languages](http://www.cedefop.europa.eu)

Communication skills

- *team work*: The candidate has worked in various types of teams. In the research field, she had the possibility to collaborate with many other research groups. In sport, her activity concerns both individual and group practice.
- *communication experience*: The candidate was involved in several projects on the interplay between sport and education. In particular, for 2 years she joined the project *Champions in life and sport* organised by CONI (the Italian Olympic Committee). Within this project, the candidate shared her experience in life and sport with young students (10-14 years) in secondary schools to promote sport values and highlight the importance of education.

- Computer skills – competent with most Microsoft Office programs and with LaTeX
– programming experience in the c language

RESEARCH TRACK RECORD

The candidate is author of 9 peer-reviewed papers, (including 1 invited article).
h factor: 4 (Scholar), 4 (WoS), 3 (Scopus).
Citations: 74 (Scholar), 51 (WoS), 32 (Scopus).

PUBLICATIONS

1. Davide Tedeschi[†], Elena Blundo[†], Marco Felici, Giorgio Pettinari, Boqing Liu, Tanju Yildirim, Elisa Petroni, Chris Zhang, Yi Zhu, Simona Sennato, Yuerui Lu, and Antonio Polimeni
[†] co-first authors
Controlled micro/nano-dome formation in proton-irradiated bulk transition-metal dichalcogenides
Advanced Materials **31**, 1903795 (2019).
2. Elena Blundo, Marco Felici, Tanju Yildirim, Giorgio Pettinari, Davide Tedeschi, Antonio Miriametro, Boqing Liu, Wendi Ma, Yuerui Lu, and Antonio Polimeni
Evidence of the direct-to-indirect band gap transition in strained two-dimensional WS₂, MoS₂, and WSe₂
Physical Review Research **2**, 012024 (2020). Rapid Communication.
3. James Felton, Elena Blundo, Sanliang Ling, Joseph Glover, Zakhar R. Kudrynskiy, Oleg Makarovskiy, Zakhar D. Kovalyuk, Elena Besley, Gavin Walker, Antonio Polimeni, and Amalia Patanè
The Interaction of Hydrogen with the van der Waals Crystal γ -InSe
Molecules **25**, 2526 (2020).
4. Elena Blundo^{*}, Cinzia Di Giorgio, Giorgio Pettinari, Tanju Yildirim, Marco Felici, Yuerui Lu, Fabrizio Bobba, and Antonio Polimeni^{*}
^{*} co-corresponding authors
Engineered creation of periodic giant, non-uniform strains in MoS₂ monolayers
Advanced Materials Interfaces **7**, 2000621 (2020).
5. Davide Tedeschi, H. Aruni Fonseka, Elena Blundo, Andreés Granados del Aguila, Yanan Guo, Hark H Tan, Peter CM Christianen, Chennupati Jagadish, Antonio Polimeni, and Marta De Luca
Hole and Electron Effective Masses in Single InP Nanowires with a Wurtzite-Zincblende Homojunction
ACS Nano **14**, 11613 (2020).
6. Elena Blundo
Proton-induced straining of two-dimensional crystals
Il Nuovo Cimento C **43**, 112 (2020), Invited paper.
7. Cinzia Di Giorgio, Elena Blundo, Giorgio Pettinari, Marco Felici, Yuerui Lu, Anna Maria Cuccolo, Antonio Polimeni, and Fabrizio Bobba
Nano-scale measurements of elastic properties and hydrostatic pressure in H₂-bulged MoS₂ membranes
Advanced Materials Interfaces **7**, 2001024 (2020).
8. Mahmoud M. S. Abdelnabi, Elena Blundo, Maria Grazia Betti, Gianluca Cavoto, Ernesto Placidi, Antonio Polimeni, Alessandro Ruocco, Kailong Hu, Yoshikazu Ito, and Carlo Mariani
Towards Free-Standing Graphane: Atomic Hydrogen and Deuterium Bonding to Nano-Porous Graphene
Nanotechnology **32**, 035707 (2021).
9. Mahmoud M. S. Abdelnabi, Chiara Izzo, Elena Blundo, Maria Grazia Betti, Marco Sbroscia, Giulia Di Bella, Gianluca Cavoto, Antonio Polimeni, Isabel Garcia-Cortes, Isabel Rucandio, Alejandro Moroño, Kailong Hu, Yoshikazu Ito, and Carlo Mariani
Deuterium Adsorption on Free-Standing Graphene
Nanomaterials **11**, 130 (2021).

SUBMITTED WORKS

1. Elena Blundo, Emmanuele Cappelluti, Marco Felici, Giorgio Pettinari and Antonio Polimeni
Strain-tuning of the electronic, optical, and vibrational properties of two-dimensional crystals
Applied Physics Reviews, Invited Paper. Accepted, in press.
2. Elena Blundo*, Cinzia Di Giorgio, and Giorgio Pettinari
* corresponding author
Bubble formation in van der Waals crystals: A platform for fundamental studies
Il Nuovo Cimento C, Invited Paper. Submitted, under review.

ORAL PRESENTATIONS AT
NATIONAL/INTERNATIONAL
CONFERENCES

The first name is the name of the presenting author.

1. Antonio Polimeni, Davide Tedeschi, Elisa Petroni, Marco Felici, Giorgio Pettinari, Elena Blundo, Simona Sennato, Chris Zhang, Yuerui Lu
Proton-driven generation of atomically thin, light emitting domes in transition metal dichalcogenides
Invited speaker at the Psi-k workshop on 2D layered materials for opto-electronics: a theoretical/computational perspective, 18 – 19 December 2017, Roma, Italy.
2. Antonio Polimeni, Davide Tedeschi, Marco Felici, Giorgio Pettinari, Elena Blundo, Elisa Petroni, Simona Sennato, Chris Zhang, Yuerui Lu
Proton-driven patterning of bulk transition metal dichalcogenides
Invited speaker at the International Workshop on Electronic Structure of Superconductors and Novel Materials, 23 – 25 May 2018, Roma, Italy.
3. Elena Blundo, Davide Tedeschi, Marco Felici, Giorgio Pettinari, Simona Sennato, Elisa Petroni, Tanju Yildirim, Chris Zhang, Ankur Sharma, Boqing Liu, Yuerui Lu, Antonio Polimeni
Hydrogen-driven generation of atomically thin, light emitting domes in transition metal dichalcogenides
Materials 2018, 22 – 26 October 2018, Bologna, Italy.
4. Marco Felici, Davide Tedeschi, Elena Blundo, Giorgio Pettinari, Tanju Yildirim, Elisa Petroni, Simona Sennato, Boqing Liu, Chris Zhang, Yi Zhu, Yuerui Lu, Antonio Polimeni
Hydrogen-assisted fabrication of site-controlled light-emitting micro/nanodomains in bulk transition-metal dichalcogenides
Invited speaker at the 6th international workshop on Engineering of Quantum Emitter Properties, 5 – 7 December 2018, Roma, Italy.
5. Cinzia Di Giorgio, Elena Blundo, Giorgio Pettinari, Davide Tedeschi, Marco Felici, Antonio Polimeni, Boqing Liu, Tanju Yildirim, Yuerui Lu, Fabrizio Bobba
Elasto-mechanical study of MoS₂ domes by Atomic Force Microscopy and Spectroscopy
NANO-M&D 2019, 4-8 June 2019, Paestum, Italy.
6. Antonio Polimeni, Elena Blundo, Davide Tedeschi, Marco Felici, Giorgio Pettinari, Boqing Liu, Tanju Yildirim, Elisa Petroni, Chris Zhang, Yi Zhu, Simona Sennato, Yuerui Lu
Controlled micro/nano-dome formation in proton-irradiated bulk transition-metal dichalcogenides
Invited speaker at the International Conference On Physics of 2D Crystals 2019, 11-15 June 2019, Hangzhou, China.
7. Elena Blundo, Davide Tedeschi, Marco Felici, Giorgio Pettinari, Boqing Liu, Tanju Yildirim, Chris Zhang, Yi Zhu, Yuerui Lu, Antonio Polimeni
Controllable micro/nano-dome creation in proton-irradiated bulk transition-metal dichalcogenides
Nanoinnovation 2019, 12-14 June 2019, Rome, Italy.
8. Elena Blundo, Davide Tedeschi, Marco Felici, Giorgio Pettinari, Boqing Liu, Tanju Yildirim, Chris Zhang, Yuerui Lu, Antonio Polimeni
Proton-induced straining of two-dimensional crystals
105° Congresso Nazionale SIF, 23-27 September 2019, L'Aquila, Italy.

9. Elena Blundo, Cinzia Di Giorgio, Marco Felici, Giorgio Pettinari, Tanju Yildirim, Yuerui Lu, Fabrizio Bobba, Antonio Polimeni
Bubble formation in van der Waals crystals: A platform for fundamental studies.
106° Congresso Nazionale SIF, 14-18 September 2020, Online conference.
10. Elena Blundo et al.
Strain Tuning of the Optoelectronic Properties of Two-Dimensional Crystals.
MRS Spring Meeting & Exhibit, To be held on 17-23 April 2021, Online conference.

POSTERS AT
NATIONAL/INTERNATIONAL
CONFERENCES

The first name is the name of the presenting author.

1. Davide Tedeschi, Marco Felici, Giorgio Pettinari, Elena Blundo, Simona Sennato, Elisa Petroni, Tanju Yildirim, Chris Zhang, Ankur Sharma, Boqing Liu, Yuerui Lu, Antonio Polimeni
Hydrogen-driven generation of atomically thin, light emitting domes in transition metal dichalcogenides
Nonlinear optics and excitation kinetics in semiconductors, November 2018, Berlin, Germany.
2. Nicoletta Granchi, Elena Blundo, Davide Tedeschi, Marco Felici, Giorgio Pettinari, Tanju Yildirim, Boqing Liu, Chris Zhang, Yi Zhu, Yuerui Lu, Dario Balestri, Massimo Gurioli, Francesca Intonti, Antonio Polimeni
Near-Field imaging of local light emission in transition metal dichalcogenides curved monolayers
Plasmonica 2019, 19-21 June 2019, Naples, Italy.

SPORT AWARDS

7 Bronze medal of Sports Merit by CONI (the Italian Olympic Committee) 2011, 2013, 2014, 2015, 2017, 2018, 2019

TAEKWONDO PALMARES**World Championships**

- 1 Silver medal World Championships 2012 in Tunja, Colombia.
- 1 Silver medal and 1 Bronze medal Beach World Championships 2018 in Rhodes, Greece.

Grand Prix

- 1 Silver medal and 1 Bronze medal Roma World Taekwondo Grand Prix 2019 in Rome.

European Championships

- 1 Silver medal and 1 Bronze medal European Championships 2011 in Genoa, Italy.
- 1 Bronze medal European Championships 2013 in Alicante, Spain.
- 1 Bronze medal European Championships 2015 in Belgrade, Serbia.
- 1 Gold medal and 2 Silver medals Europe Beach Championships 2019 in Antalya, Turkey.

Opens

- 2 Gold medals Korean Open 2010 in Gumi.
- 1 Gold medal and 1 Silver medal Austrian Open 2012 in Vienna.
- 1 Bronze medal French Open 2016 in Lille.
- 1 Silver medal and 1 Bronze medal Belgian Open 2018 in Lommel.
- 1 Bronze medal Austrian Open 2020 in Vienna.

National championships

- 9 times National Poomsae Champion (Gold medal) National Championships 2008, 2009, 2010, 2011, 2012, 2014, 2017, 2018, 2019.
- 1 time National Freestyle Champion (Gold medal) National Championships 2017.

F.to Elena Blundo