

PERSONAL INFORMATION **Antonio Politano**

University of L'Aquila
Department of Physical and Chemical Sciences
Via Vetoio, 67100 L'Aquila, Italy

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 https://www.researchgate.net/profile/Antonio_Politano
 <https://scholar.google.com/citations?user=pTRV048AAAAJ&hl=en>

Gender M | Date of birth 01/09/1981 | Nationality Italian

PhD date 15/12/2008	<input type="checkbox"/> <10 years from the date of the first PhD	<input checked="" type="checkbox"/> >10 years from the date of the first PhD
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Enterprise	University	EPR
<input type="checkbox"/> Management Level	<input type="checkbox"/> Full professor	<input type="checkbox"/> Research Director and 1st level Technologist / First Researcher and 2nd level Technologist / Principal Investigator
<input type="checkbox"/> Mid-Management Level	<input checked="" type="checkbox"/> Associate Professor	<input type="checkbox"/> Level III Researcher and Technologist
<input type="checkbox"/> Employee / worker level	<input type="checkbox"/> Researcher	<input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator

EMPLOYMENTS

CURRENT POSITION(S)

Replace with dates (from - to)

Associate Professor in Experimental Condensed Matter Physics

University of L'Aquila, Department of Physical and Chemical Sciences, L'Aquila, Italy

PREVIOUS POSITION(S)

September 2018-August 2021

Tenure track researcher (rtd-B) in Experimental Condensed Matter Physics

University of L'Aquila, Department of Physical and Chemical Sciences, L'Aquila, Italy

June 2017-August 2018

Post-doc

Italian Institute of Technology (IIT), Graphene Labs, Genoa, Italy

September 2014-December 2016

Post-doc

University of Calabria

March 2011-July 2014

Post-doc

Universidad Autónoma de Madrid

January 2009-February 2010

Post-doc

Instituto Madrilenio de Estudios Avanzados en Nanociencia, Madrid, Spain

EDUCATION AND ACADEMIC DEGREES

- 15/12/2008 PhD in Physics
Department of Physics, University of Calabria, Italy
Supervisor: Prof. Gennaro Chiarello
- 17/12/2012 Second Master degree in Materials Science and Engineering (110/110 cum laude)
University of Calabria
- 27/7/2005 Master degree in Physics (110/110 cum laude)
University of Calabria
- 23/7/2003 Bachelor degree in Physics (110/110 cum laude)
University of Calabria

ACHIEVEMENTS AND AWARD

Awards

- [1] Winner of the **Prize for scientific activity “Carlo Castagnoli”** for young Italian researchers in Physics (graduated after May 2003), by the Italian Physical Society (Società Italiana di Fisica, **SIF**), Bologna, 20-09-2010.
- [2] Winner of the **Prize for scientific production “Alfredo di Braccio”** for young Italian researchers in Physics (under 35 years), by **Accademia Nazionale dei Lincei**, Roma, 16-06-2011
- [3] **Winner of the NEST Prize for Nanoscience 2016**, organized by NEST Laboratory.
- [4] Outstanding Referee APS (American Physical Society) 2022

Fellowships

- [1] Winner of the Fellowships by Fondazione Angelo Della Riccia for Italian post-doc in Physics- (**First classified**, 12 months) for the year 2008
- [2] Winner of the International Fellowship by IUVSTA, International Union for Vacuum Science, Technique and Applications, **First Classified**- August 2009-August 2010
- [3] Winner of Fellowships by Spanish Ministry of Education, “Subprograma Estancias de Movilidad de profesores e investigadores extranjeros en centros españoles- Movilidad B: Estancias de jóvenes doctores extranjeros en centros españoles” for post-doc up to 10 years from the PhD examination: **winner for “Física y Ciencias del Espacio”** (January 2010- May 2011)
- [4] Winner of a fellowship of Regione Calabria for post-doc (September 2011-August 2014)

Grants (last 10 years)

PON Ricerca e Innovazione, “Sviluppo di membrane funzionali basate su nanomateriali fototermici per dissalazione di acqua marina, recupero di minerali dal mare e produzione di energia tramite gradiente di concentrazione salina” 90.000 euro Role: Scientific supervisor

IVANHOE- Innovative nanomaterials as electrocatalysts for hydrogen evolution reaction (Principal Investigator) Funding: 100,000 euro for University of L’Aquila

EURIPIDES- innovative Electrocatalysts based on quantUm mateRIals for the sustainable ProductIon of hyDrogen by ElectrolySiS (Principal Investigator), Funding 150,000 euro for University of L’Aquila and University of Calabria

Habilitations as Full Professor

EXBRINER- Next-generation membrane technologies for sustainable exploitation of seawater brine resources: transition towards a circular blue

industry (Responsible of the unit at University of L'Aquila), Funding 1 Marie Curie PhD fellowship for Tsotne Dadiani and 90,000 euro for University of L'Aquila

PLANET- Plasmons of topological nodal-line semimetals (Principal Investigator), funding 190,000 euro for two units at university of l'aquila and university of calabria (50% each one)

2011-2014 POR CALABRIA FSE 2007/2013, 64000 euro Role: Principal Investigator

October 2014: Habilitation as Full Professor for the scientific sector 03/B2- Principles of Chemistry for

Applied Technologies (Italian Ministry of University and Research)

April 2017: Habilitation as Full Professor for the scientific sector 02/B1- Experimental Physics of Matter

(Italian Ministry of University and Research)

August 2018: Habilitation as Full Professor for the scientific sector 03/B1 - Principles of Chemistry and Inorganic Systems (Italian Ministry of University and Research)

October 2018: Habilitation as Full Professor for the scientific sector 03/B2- Principles of Chemistry for

Applied Technologies (*already in ASN 2013)

1 granted Italian Patent IT102018000020641

Patents
A. Politano, F. Bonaccorso, A. E. Del Rio, E. Drioli, A. Gugliuzza, F. Macedonio and V. Pellegrini, *Procedimento per la fabbricazione di una membrana composita con cristalli bidimensionali ottenuti per esfoliazione di materiali stratificati mediante tecniche di wet-jet milling*.
FILING DATE: 21/12/2018; FIRST PUBLICATION DATE: 22/6/2020 ACCEPTANCE: 22/11/2020

PUBLICATIONS

Bibliometric parameters

Total number of publications in peer-review journals: 250
Total number of citations: 7214
H index: 44

Insertion in databases of highly cited scientists

- List of "Top Italian Scientists" (TIS) by VIA Academy and in Research.com (#201 for Materials Science in Italy)
- Database of most cited 100,000 scientists (top 2% in each subfield) prepared by Mendeley and Elsevier providing standardized information on citations, h-index, co-authorship adjusted hm-index, citations to papers in different authorship positions and a composite indicator, with the last update available at <https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/3>
Specifically, 1299th position in the international ranking for the sub-field "Nanoscience and Nanotechnology"

Relevant publications (last 10 years)

[1] A. Politano, F. de Juan, G. Chiarello and H. A. Fertig, Emergence of an Out-of-Plane Optical Phonon (ZO) Kohn Anomaly in Quasifreestanding Epitaxial Graphene, *Phys. Rev. Lett.* 115 (2015) 075504.
[2] A. Politano, V. M. Silkin, I. A. Nechaev, M. S. Vitiello, L. Viti, Z. S. Aliev, M. B. Babanly, G. Chiarello, P. M. Echenique and E. V. Chulkov, Interplay of Surface and Dirac Plasmons in Topological Insulators: The Case of Bi₂Se₃, *Phys. Rev. Lett.* 115 (2015) 216802.

- [3] Z. Hu, L. Zhang, A. Chakraborty, G. D'Olimpio, J. Fujii, A. Ge, Y. Zhou, C. Liu, A. Agarwal, I. Vobornik, D. Farias, C.-N. Kuo, C. S. Lue, A. Politano, S.-W. Wang, W. Hu, X. Chen, W. Lu and L. Wang, Terahertz Nonlinear Hall Rectifiers Based on Spin-Polarized Topological Electronic States in 1T-CoTe₂, *Adv. Mater.* 35 (2023) 2209557.
- [4] A. Politano, G. Chiarello, B. Ghosh, K. Sadhukhan, C.-N. Kuo, C. S. Lue, V. Pellegrini and A. Agarwal, 3D Dirac Plasmons in the Type-II Dirac Semimetal PtTe₂, *Phys. Rev. Lett.* 121 (2018) 086804.
- [5] G. D'Olimpio, C. Guo, C. N. Kuo, R. Edla, C. S. Lue, L. Ottaviano, P. Torelli, L. Wang, D. W. Boukhvalov and A. Politano, PdTe₂ Transition-Metal Dichalcogenide: Chemical Reactivity, Thermal Stability, and Device Implementation, *Adv. Funct. Mater.* 30 (2020) 1906556.
- [5] G. D'Olimpio, S. Nappini, M. Vorokhta, L. Lozzi, F. Genuzio, T. O. Menteş, V. Paolucci, B. Gürbulak, S. Duman, L. Ottaviano, A. Locatelli, F. Bondino, D. W. Boukhvalov and A. Politano, Enhanced Electrocatalytic Activity in GaSe and InSe Nanosheets: The Role of Surface Oxides, *Adv. Funct. Mater.* 30 (2020) 2005466.
- [6] K. Sadhukhan, A. Politano and A. Agarwal, Novel Undamped Gapless Plasmon Mode in a Tilted Type-II Dirac Semimetal, *Phys. Rev. Lett.* 124 (2020) 046803.
- [7] S. Santoro, A. H. Avci, A. Politano and E. Curcio, The advent of thermoplasmonic membrane distillation, *Chem. Soc. Rev.* 51 (2022) 6087.
- [8] D. W. Boukhvalov, S. Nappini, M. Vorokhta, T. O. Menteş, L. Piliai, M. Panahi, F. Genuzio, J. De Santis, C. N. Kuo, C. S. Lue, V. Paolucci, A. Locatelli, F. Bondino and A. Politano, Revisiting the Chemical Stability of Germanium Selenide (GeSe) and the Origin of its Photocatalytic Efficiency, *Adv. Funct. Mater.* 31 (2021) 2106228.
- [9] I. Vobornik, A. B. Sarkar, L. Zhang, D. W. Boukhvalov, B. Ghosh, L. Piliai, C. N. Kuo, D. Mondal, J. Fujii, C. S. Lue, M. Vorokhta, H. Xing, L. Wang, A. Agarwal and A. Politano, Kitaite NiTeSe, an Ambient-Stable Layered Dirac Semimetal with Low-Energy Type-II Fermions with Application Capabilities in Spintronics and Optoelectronics, *Adv. Funct. Mater.* 31 (2021) 2106101.
- [10] A. Politano, P. Argurio, G. Di Profio, V. Sanna, A. Cupolillo, S. Chakraborty, H. A. Arafat and E. Curcio, Photothermal membrane distillation for seawater desalination, *Adv. Mater.* 29 (2017) 1603504.

ADDITIONAL INFORMATION

Institutional responsibilities

Replace with dates (from - to)

Member of the PhD board in Physical and Chemical Sciences, University of L'Aquila, Italy
2018-now

Mentorship of students/young researchers/fellows

Replace with dates (from - to)

Supervisor of 13 master thesis in Physics and Materials Science and, moreover, 2 PhD thesis

Organisation of conferences/scientific meetings

May 2016 Chairman of Korea-Italy workshop on materials beyond graphene, ~40 participants, Seoul, Korea

September 2019 Organizer of the symposia on (i) Layered Materials and (ii) Surface Science within the annual meeting of Italian Society of Physics, ~50 participants, L'Aquila, Italy

June 2021 Organizer of the online conference New Trends in Materials Science and Engineering (sponsored by INSTM, 170 participants)

December 2021 Organizer and chairman of the Italy-Taiwan bilateral symposium on emergent crystalline materials

(supported by the Embassy of Taiwan in Rome and the Italian delegation in Taiwan), ~40 participants

Major invited presentations

TITLE: Graphene vibrational spectroscopy
Carbon Topology Workshop, Erice, Italy, June, 21th 2013

TITLE: Collective modes in graphene and topological insulators
Italy-China Workshop on graphene, Dalian, China, September, 19th 2014

TITLE: Thermoplasmonic membrane distillation for seawater desalination

Surface plasmons and plasmonics Workshop , Santa Margherita Ligure, Italy, June, 10th 2015

TITLE: Plasmon modes in topological insulators: from basic research to plasma-wave THz photodetection New Trends in Topological Insulators Workshop, San Sebastian, Spain, July, 10th 2015

TITLE: Surface chemical reactions at epitaxial graphene and materials “beyond graphene” GraphITA- A Multidisciplinary and Intersectorial European Workshop on Synthesis, Characterization and Technological Exploitation of Graphene and 2D Materials Beyond Graphene Bologna, Italy, September, 14th 2015

TITLE: Surface chemical reactions at epitaxial graphene and materials “beyond graphene” II Italy-China Workshop on graphene Genova, Italy, April, 24th 2016

TITLE: An atlas of two-dimensional materials “beyond graphene”: status and prospect Italy-Republic of Korea workshop on science and technology of materials “beyond graphene” Seoul, Republic of Korea, May 2016

TITLE: Surface chemical reactions at epitaxial graphene and materials “beyond graphene” Third international conference on scattering of atoms and molecules from surfaces. Bergen, Norway. August 2016

TITLE: Surface chemical reactions at epitaxial graphene and materials “beyond graphene” Materials 2016 Conference, Catania, Italy December, 16th 2016

TITLE: Photothermal membrane distillation for seawater desalination Nanoinnovation 2017 (invited presentation for the winner of the NEST Prize) Roma, Italy September, 26th 2017

TITLE: Science and technology of two-dimensional semiconductors E-MRS Spring Meeting (Symposium T) Nice, France, May 2019

TITLE: Plasmons in Dirac/Weyl materials Fourth international conference on scattering of atoms and molecules from surfaces Madrid, Spain , September, 24th 2019

TITLE: PtTe₂, PdTe₂ and NiTe₂: ambient-stable transition-metal dichalcogenides for catalysis, nanoelectronics and plasmonics Israel-Italy workshop on 2D materials Tel Aviv, Israel , November, 24th 2019

TITLE: Ambient-stable transition-metal dichalcogenides hosting type-II Dirac fermions and their applications in catalysis, nanoelectronics, and plasmonics, Nanoinnovation, Rome, September, 23th 2021

Editorial and Reviewing activities

- [1] Associate Editor of “Frontiers in Materials Science”, EPFL, Lausanne, Switzerland, from April, 2014 (impact factor 3.515)
- [2] Associate Editor of “Nanomaterials”, MPDI, from July 2019 (impact factor 5.076)
- [3] Associate Editor of “Materials”, MPDI, from January 2020 (impact factor 3.623)

Moreover, prof. Politano acts as reviewer for more than 40 journals, including Nature Materials, Nature Nanotechnology, Physical Review Letters, Advanced Materials etc. with awards as outstanding reviewer for (i) American Physical Society (APS) and (ii) 2D Materials (Institute of Physics)

"According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV "

L'Aquila, 4/5/2023