

# Daniela Stornaiuolo

## Personal information

Italian citizen - Born on

## Present academic position

Associate professor, Department of Physics, University of Naples "Federico II".

## Academic Degrees

- PhD in Innovative Technologies for Materials, Sensors and Imaging, Department of Physics, University of Naples "Federico II" (Italy), 2007
- Laurea (Master's degree) in Materials Engineering, University of Naples "Federico II" (Italy), 2002

National Scientific Qualification for the role of Full Professor (02/B1 Experimental Physics of matter) obtained on 06/12/2022

## Teaching experience

- 2016-present: Lecturer for the course of General Physics, Engineering Faculty, University of Naples "Federico II"
- 2019-present: Lecturer for the Electronics laboratory course, Physics Department, University of Naples "Federico II"
- 2012-2013: Lecturer for the Physics laboratory course, Département de Physique de la Matière Condensée, Université de Genève, Suisse

## Key numbers

Citations: 1426, H-index= 23 (Scopus)

Author of 86 papers, including 1 Nature Materials, 1 Nature Physics, 1 Nature Electronics, 1 Npj Quantum Materials, 3 APL Materials, 3 APL, 1 ACS Applied Electronics Materials, 1 Nanoletters, 2 Nanotechnology, 5 Phys. Rev. Lett., 1 Scientific Reports,

## Professional Experience:

- 2013 - 2021 Tenure track researcher (RTD-A and B), Department of Physics, University of Naples "Federico II"
- 2011 Mar - 2013 June: Post-doc researcher at the Département de Physique de la Matière Condensée (DPMC), Université de Genève in the group of Prof. J.-M. Triscone
- 2008 Feb - 2011 Feb: Research grants at the CNR-SPIN, Naples in the framework of the European project "MIDAS"
- 2003 Sept - 2004 May: R&D employee, MBDA, Electronic Design Department, Fusaro, Naples, Italy - Study of silica based advanced ceramic materials for the realization of radomes and electromagnetic windows, Environmental studies on ceramic radomes for missile application

## Projects

- 2023 – present: Principal investigator of the MUR PRIN project STIMO
- 2023- present Associated Investigator of the EU Pathfinder project IQARO
- 2018 - 2022: Associated investigator of the UNINA unit for the MUR PRIN project TOPSPIN
- 2017 - present: work package leader of the INFN project Archimedes
- 2013 July - 2016 Nov: Principal Investigator of the MUR FIRB project HybridNanoDev, founded by the Italian Ministry of University and Research (MIUR)

## Selected invited talks to international conferences:

- Low dimensional superconducting hybrids for novel quantum functionalities" International workshop, Paris, France, 12-14 October 2021,
- Electron correlation in superconductors and nanostructures International conference Odessa, Ukraine, 6- 10 October, 2019
- MRS Spring Meeting 2019, Phoenix, Arizona, USA, 22-26 April 2019

- International workshop "Workshop on nanoscale imaging of quantum devices", Eilat Israel, 17-20 February 2019
- MultiSuper international conference on "Multi-Condensate Superconductivity and Superfluidity in Solids and Ultracold Gases", Trieste, Italy, 20-24 May 2018
- International Workshop "Coherent superconducting hybrids and related materials", Les Arcs, France, 26-29 March 2018
- International workshop: Superconductivity in atomically thin materials and heterostructures, Lugano, Switzerland, 20-23 November 2017
- 28th conference on Low Temperature Physics, Gothenburg, Sweden, 9-16 August 2017
- International Workshop on Oxide Electronics (WOE 23), Nanjing, Cina, 12-14 October 2016
- International workshop "Nano confined superconductors and their applications", Garmisch-Partenkirchen, Germany, 3-7 September 2016
- SUPERSTRIPES International conference, Quantum in Complex Matter: Superconductivity, Magnetism and Ferroelectricity, Ischia (Naples, Italy), June 23-29 2016
- International workshop "Probing Superconductivity at the Nanoscale", Saas-Fee (Switzerland), 12-15 April 2016
- International workshop "Superconductivity on the verge" 27 – 31 July 2015, Lorentz center, Leiden (Netherland)
- 4th International Conference on Superconductivity and Magnetism (ICSM2014), April 27th to May 2nd 2014, Antalya (Turkey)

#### Member of the organizing committee of the following international conferences:

- International workshop: Quantum Coherent Transport at the Nanoscale 2019, Ischia, Na, Italy, 19-22 June 2019
- 5th International Workshop on Complex Oxides, Capri, Italy, 20-24 May 2018,
- 16th International Superconductive Electronics conference ISEC2017, Sorrento, Italy 12-16 June 2017
- International workshop Shyned – Physics and application of superconducting hybrid nano-engineered devices – Santa Maria di Castellabate, Italy Aug31 – Sept 4 2014
- New frontiers for Majorana fermions from condensed to dark matter, Frascati National Laboratories, Italy 5-6 May 2014

#### Outreach and dissemination activities:

- From October 2022: Science Communication coordinator for the COST project Superconducting Nanodevices and Quantum Materials for Coherent Manipulation (SUPERQUMAP) (CA 21144)
- 14-28 April 2023 - Member of the organizing committee of the "Italian Quantum Weeks" exhibition in Naples

#### Selected publications

Authors	Title	Year	Source title	Volume	Issue	Art. No.
D'Antuono M., Chen Y., Caruso R., Jouault B., Salluzzo M., Stornaiuolo D.	Tuning of the magnetotransport properties of a spin-polarized 2D electron system using visible light	2023	Scientific Reports	13	1	10050
Bréhin J., Chen Y., D'Antuono M., Varotto S., <b>Stornaiuolo D.</b> , Piamonteze C., Varignon J., Salluzzo M., Bibes M.	Coexistence and coupling of ferroelectricity and magnetism in an oxide two-dimensional electron gas	2023	Nature Physics	19	6	823
Di Capua R., Verma M., Radovic M., Strocov V.N., Piamonteze C., Guedes E.B., Plumb N.C., Chen Y., D'Antuono M., De Luca G.M., Di Gennaro E., <b>Stornaiuolo D.</b> , Preziosi D., Jouault B., Miletto Granozio F., Sambri A., Pentcheva R., Ghiringhelli G., Salluzzo M.	Orbital selective switching of ferromagnetism in an oxide quasi two-dimensional electron gas	2022	npj Quantum Materials	7	1	41
Chen Y., D'Antuono M., Brookes N.B., De Luca G.M., Di Capua R., Di Gennaro E., Ghiringhelli	Ferromagnetic Quasi-Two-Dimensional Electron Gas	2022	ACS Applied Electronic Materials	4	7	

G., Piamonteze C., Preziosi D., Jouault B., Cabero M., González-Calbet J.M., León C., Santamaria J., Sambri A., <b>Stornaiuolo D.</b> , Salluzzo M.	with Trigonal Crystal Field Splitting					
Mraz A., Venturini R., Svetin D., Sever V., Mihailovic I.A., Vaskivskiy I., Ambrozic B., Dražić G., D'Antuono M., <b>Stornaiuolo D.</b> , Tafuri F., Kazazis D., Ravnik J., Ekinci Y., Mihailovic D.	Charge Configuration Memory Devices: Energy Efficiency and Switching Speed	2022	Nano Letters	22	12	
D'Antuono M., Kalaboukhov A., Caruso R., Wissberg S., Weitz Sobelman S., Kalisky B., Ausanio G., Salluzzo M., <b>Stornaiuolo D.</b>	Nanopatterning of oxide 2-dimensional electron systems using low-temperature ion milling	2022	Nanotechnology	33	8	85301
Archimedes Collaboration, Virgo Collaboration	High-bandwidth beam balance for vacuum-weight experiment and Newtonian noise subtraction	2021	European Physical Journal Plus	136	3	335
Barthelemy A., Bergeal N., Bibes M., Caviglia A., Citro R., Cuoco M., Kalaboukhov A., Kalisky B., Perroni A., Santamaria J., <b>Stornaiuolo D.</b> , Salluzzo M.	Quasi-two-dimensional electron gas at the oxide interfaces for topological quantum physics	2021	EPL	133	1	17001
Jouan A., Singh G., Lesne E., Vaz D.C., Bibes M., Barthélémy A., Ulysse C., Stornaiuolo D., Salluzzo M., Hurand S., Lesueur J., Feuillet-Palma C., Bergeal N.	Quantized conductance in a one-dimensional ballistic oxide nanodevice	2020	Nature Electronics	3	4	
Massarotti D., Miano A., Tafuri F., <b>Stornaiuolo D.</b>	High efficiency superconducting field effect devices for oxide electronic applications	2020	Superconduct or Science and Technology	33	3	34007
<b>Stornaiuolo D.</b> , Jouault B., Di Gennaro E., Sambri A., D'Antuono M., Massarotti D., Granozio F.M., Di Capua R., De Luca G.M., Pepe G.P., Tafuri F., Salluzzo M.	Interplay between spin-orbit coupling and ferromagnetism in magnetotransport properties of a spin-polarized oxide two-dimensional electron system	2018	Physical Review B	98	7	75409
Rouco V., Massarotti D., <b>Stornaiuolo D.</b> , Papari G.P., Obradors X., Puig T., Tafuri F., Palau A.	Vortex lattice instabilities in YBa2Cu3O7-x nanowires	2018	Materials	11	2	211
<b>Stornaiuolo D.</b> , Massarotti D., Di Capua R., Lucignano P., Pepe G.P., Salluzzo M., Tafuri F.	Signatures of unconventional superconductivity in the LaAlO3 / SrTiO3 two-dimensional system	2017	Physical Review B	95	14	140502
<b>Stornaiuolo D.</b> , Cantoni C., De Luca G.M., Di Capua R., Di Gennaro E., Ghiringhelli G., Jouault B., Marrè D., Massarotti D., Granozio F.M., Pallecchi I., Piamonteze C., Rusponi S., Tafuri F., Salluzzo M.	Tunable spin polarization and superconductivity in engineered oxide interfaces	2016	Nature Materials	15	3	
Montemurro D., <b>Stornaiuolo D.</b> , Massarotti D., Ercolani D., Sorba	Suspended InAs nanowire Josephson junctions	2015	Nanotechnology	26	38	385302

L., Beltram F., Tafuri F., Roddaro S.	assembled via dielectrophoresis					
Massarotti D., <b>Stornaiuolo D.</b> , Lucignano P., Galletti L., Born D., Rotoli G., Lombardi F., Longobardi L., Tagliacozzo A., Tafuri F.	Breakdown of the escape dynamics in Josephson junctions	2015	Physical Review B -	92	5	54501
Liu W., Gariglio S., Fête A., Li D., Boselli M., <b>Stornaiuolo D.</b> , Triscone J.-M.	Magneto-transport study of top- and back-gated LaAlO <sub>3</sub> /SrTiO <sub>3</sub> heterostructures	2015	APL Materials	3	6	62805
Fête A., Cancellieri C., Li D., <b>Stornaiuolo D.</b> , Caviglia A.D., Gariglio S., Triscone J.-M.	Growth-induced electron mobility enhancement at the LaAlO <sub>3</sub> /SrTiO <sub>3</sub> interface	2015	Applied Physics Letters	106	5	51604
<b>Stornaiuolo D.</b> , Gariglio S., Fête A., Gabay M., Li D., Massarotti D., Triscone J.-M.	Weak localization and spin-orbit interaction in side-gate field effect devices at the LaAlO <sub>3</sub> / SrTiO <sub>3</sub> interface	2014	Physical Review B	90	23	235426
Fête A., Gariglio S., Berthod C., Li D., Stornaiuolo D., Gabay M., Triscone J.-M.	Large modulation of the Shubnikov-de Haas oscillations by the Rashba interaction at the LaAlO <sub>3</sub> /SrTiO <sub>3</sub> interface	2014	New Journal of Physics	16		112002
De Luca G.M., Di Capua R., Di Gennaro E., Granozio F.M., <b>Stornaiuolo D.</b> , Salluzzo M., Gadaleta A., Pallecchi I., Marrè D., Piamonteze C., Radovic M., Ristic Z., Rusponi S.	Transport properties of a quasi-two-dimensional electron system formed in LaAlO <sub>3</sub> / EuTiO <sub>3</sub> / SrTiO <sub>3</sub> heterostructures	2014	Physical Review B	89	22	224413
Li D., Gariglio S., Cancellieri C., Fête A., <b>Stornaiuolo D.</b> , Triscone J.-M.	Fabricating superconducting interfaces between artificially grown LaAlO <sub>3</sub> and SrTiO <sub>3</sub> thin films	2014	APL Materials	2	1	12102
Salluzzo M., Gariglio S., <b>Stornaiuolo D.</b> , Sessi V., Rusponi S., Piamonteze C., De Luca G.M., Minola M., Marré D., Gadaleta A., Brune H., Nolting F., Brookes N.B., Ghiringhelli G.	Origin of interface magnetism in BiMnO <sub>3</sub> /SrTiO <sub>3</sub> and LaAlO <sub>3</sub> /SrTiO <sub>3</sub> heterostructures	2013	Physical Review Letters	111	8	87204
<b>Stornaiuolo D.</b> , Rotoli G., Massarotti D., Carillo F., Longobardi L., Beltram F., Tafuri F.	Resolving the effects of frequency-dependent damping and quantum phase diffusion in YBa <sub>2</sub> Cu <sub>3</sub> O <sub>7-x</sub> Josephson junctions	2013	Physical Review B	87	13	134517
Tafuri F., Massarotti D., Galletti L., <b>Stornaiuolo D.</b> , Montemurro D., Longobardi L., Lucignano P., Rotoli G., Pepe G.P., Tagliacozzo A., Lombardi F.	Recent achievements on the physics of high-T <sub>C</sub> superconductor Josephson junctions: Background, perspectives and inspiration	2013	Journal of Superconductivity and Novel Magnetism	26	1	
<b>Stornaiuolo D.</b> , Gariglio S., Couto N.J.G., Fête A., Caviglia A.D., Seyfarth G., Jaccard D., Morpurgo A.F., Triscone J.-M.	In-plane electronic confinement in superconducting LaAlO <sub>3</sub> /SrTiO <sub>3</sub> nanostructures	2012	Applied Physics Letters	101	22	222601

Longobardi L., Massarotti D., <b>Stornaiuolo D.</b> , Galletti L., Rotoli G., Lombardi F., Tafuri F.	Direct transition from quantum escape to a phase diffusion regime in YBaCuO biepitaxial Josephson junctions	2012	Physical Review Letters	109	5	50601
Longobardi L., Massarotti D., Rotoli G., <b>Stornaiuolo D.</b> , Papari G., Kawakami A., Pepe G.P., Barone A., Tafuri F.	Thermal hopping and retrapping of a Brownian particle in the tilted periodic potential of a NbN/MgO/NbN Josephson junction	2011	Physical Review B	84	18	184504
Longobardi L., Massarotti D., Rotoli G., <b>Stornaiuolo D.</b> , Papari G., Kawakami A., Piero Pepe G., Barone A., Tafuri F.	Quantum crossover in moderately damped epitaxial NbN/MgO/NbN junctions with low critical current density	2011	Applied Physics Letters	99	6	62510
<b>Stornaiuolo D.</b> , Papari G., Cennamo N., Carillo F., Longobardi L., Massarotti D., Barone A., Tafuri F.	High quality factor HTS Josephson junctions on low loss substrates	2011	Superconduct or Science and Technology	24	4	45008
<b>Stornaiuolo D.</b> , Rotoli G., Cedergren K., Born D., Bauch T., Lombardi F., Tafuri F.	Submicron YBaCuO biepitaxial Josephson junctions: D-wave effects and phase dynamics	2010	Journal of Applied Physics	107	11	113901
Carillo F., Papari G., <b>Stornaiuolo D.</b> , Born D., Montemurro D., Pingue P., Beltram F., Tafuri F.	Little-Parks effect in single nanoscale YBa <sub>2</sub> Cu <sub>3</sub> O <sub>6+x</sub> rings	2010	Physical Review B	81	5	54505