Anna Giordano is an Assistant Professor (Tenure Track) at the Department of Engineering, University of Messina, Italy since October 2021. She received her PhD (XXXII cycle) in "Advanced Technologies for Optoelectronics, Photonics and Electromagnetic Modeling" form the University of Messina, Italy, in 2014.
She was a Postdoctoral Researcher (Assegnista di Ricerca ING-IND/31) at the National Institute of Geophysics and Volcanology (sez. Palermo – sez. Roma2, Italy), from 2017 to 2021.
Also, she was a Postdoctoral Researcher (Assegnista di Ricerca ING-IND/31) at the University of Messina, from 2014 to 2016.

Bibliometric indicators
Web of Science: h-index 13 and > 520 citations; Scopus: h-index 13 and > 536 citations; Google scholar: h-index 15 and > 684 citations - update 05/06/2022.
She is a co-author of more than 30 papers published in well-established international journals (IEEE, Nature group, APS).

Dissemination activities
She has organized as co-chair, member of the scientific committee and local organizing committee more than 5 well established conferences (magnonics, hysteresis modeling and micromagnetics (HMM)) and she was co-organizer of more than 5 workshops in Messina.
She has been also co-founder of the PETASPIN association (www.petaspin.com) whose purpose is to support scientific dissemination activities in the field of engineering and applied physics. This association has created a virtual activity plan in 2020/2021 of over 50 researcher presentations from all over the world. They are continuing organizing virtual activities for the year 2022. Actually, Petaspin lead the organization of Trends in Magnetism conference series and has more than 12000 contact of people working in magnetism and related field and has organized several events and virtual activities (https://www.petaspin.com/workshops-and-seminars-2022-home/).

Research activities
She is responsible for the implementation of the code for PETASPIN micromagnetic simulations (generalization of the GPMagnet code - https://www.goparallel.com/index.php/gp-software). PETASPIN integrates unique features as for example to mention the possibility of simulating hybrid structures of coupled ferromagnets and ferrimagnets. Her main skills are implementation of numerical methods, modeling and micromagnetic design of spintronic devices. Since the first years of her PhD, she has been involved in the development of mathematical algorithms for micromagnetic simulations, including algorithms implemented on GPUs (Graphics Processing Units). In particular, Anna Giordano have optimized the calculation of the magnetostatic field by implementing parallel routines with CUDA™ based language with the achievement of an 8x reduced computational time. She has proposed a new method of time integration scheme which can be used as the solver in micromagnetic simulations for the LLGS equation, that describes the relationship between the magnetic field and the magnetization of a system at the micrometric and nanometric scale (A. Giordano, G. Finocchio, L. Torres, M. Carpentieri, B. Azzerboni. *"Semi-implicit integration scheme for Landau–Lifshitz–Gilbert-Slonczewski equation*", JAP, 2012). It has been realized a micromagnetic code in CUDA and this is tested by the standard problems of the micromagnetism of the mumag (https://www.ctcms.nist.gov/~rdm/std5/results.html). She has also extended the implementation of the PETASPIN micromagnetic solver to multi-GPU architectures. The main advantages are the possibility to study larger devices with reasonable computation times and to carry out Multiphysics simulations. Thanks to this peculiarity, Anna Giordano has reproduced quantitatively different experimental results and predicted new phenomena. Recently, within a scientific collaboration with the group of prof. Hans Hug (Empa, Switzerland), she has published in December 2020 a joint publication in Nature Communications ["Coexistence of distinct skyrmion phases observed in hybrid ferromagnetic/ferrimagnetic multilayers" https://www.nature.com/articles/s41467-020-20025-2]. Also she was in charge of optimizing, based on the micromagnetic formalism, of the physical and geometric properties of Magnetic Junctions with Tunnel effect for the design of spintronic magnetic memories with random access.
She also dealt of the key features of skyrmions dynamics in response to thermal excitations (A. Giordano, R. Verba, R. Zivieri, A. Laudani, V. Puliafito, G. Gubbiotti, R. Tomasello, G. Siracusano, B. Azzerboni, M. Carpentieri, A. Slavin, and G. Finocchio, *"Spin-Hall nano-oscillator with oblique magnetization and*

Dzyaloshinskii-Moriya interaction as generator of skyrmions and nonreciprocal spin-waves" Scientific Reports, 2016). She implemented the routine to systematically analyze the skyrmion images during dynamics.

Degree of success in previous Italian or international projects

Participation in the EMSO MIUR research program entitled "Development of codes for data acquisition from multichannel systems and simultaneous data analysis aimed in particular at the management of scintillator - photomultiplier systems for environmental radioactivity applications" (Sviluppo di codici per acquisizione dati da sistemi multicanale e contemporanea analisi di dati finalizzata in particolar modo alla gestione di sistemi scintillatore - fotomoltiplicatore per applicazioni di radioattività ambientale) for the years 2016-2020.
Scientific coordinator: Massimo Chiappini (INGV-Roma) and Francesco Italiano (INGV-Palermo)
Main research activity: design and development of techniques for data manipulation, in particular the attention has been focused on the creation of tools based on new techniques.

Participation in the Executive program of scientific and technological cooperation between Italy and China for the years 2016–2018 entitled "Nanoscale broadband spin-transfer-torque microwave detector" funded by Ministero degli Affari Esteri e Cooperazione Internazionale (MAECI) grant n° CN16GR09.
Scientific coordinators: Prof. Giovanni Finocchio and Prof. Zhongming Zeng.
Role: Responsible for the micromagnetic modeling and numerical simulations of both broadband spintronic diodes based on the spin-torque effect for the detection of electromagnetic energy and spin-Hall oscillators (B. Fang, M Carpentieri, S. Louis, V. Tiberkevich, A. Slavin, I. N. Krivorotov, R Tomasello, A Giordano, H. Jiang, J. Cai, Y. Fan, Z. Zhang, B. Zhang, J. A. Katine, K. L. Wang, P. K. Amiri, G. Finocchio, Z. Zeng, *"Experimental Demonstration of Spintronic Broadband Microwave Detectors and Their Capability for Powering Nanodevices"*. Physical Review Applied, 2019)

Partecipation for the years 2014-2016 in the PRIN project (PRIN2010ECA8P3) entiled – "Manipulation of magnetization dynamics in nanostructures for spintronic applications".
Scientific coordinator: Prof. Giovanni Finocchio.
Main research activity: design, implementation and testing phase of parallel code for micromagnetic simulations. This project stems from the growing interest of the scientific community of magnetism in nanotechnologies at the service of applications of electrotechnics, information technology and telecommunication systems.

Achievement of awards and other recognitions

Young Researcher Award

Young Researcher Award ", Annual Meeting of the IEEE Magnetics Society – Italy Chapter, 19 Maggio 2017, Messina, Italia. The award was awarded based on the curriculum vitae and evaluating the work: "Micromagnetic Study of Spin-Transfer-Driven Vortex Dipole and Vortex Quadrupole Dynamics" IEEE Magnetics Letters, vol. 50, 4300404 (2014)".

Best Poster Award

Israa Medlej, Riccardo Tomasello, Anna Giordano, Stefano Chiappini, Roberto Zivieri, Giulio Siracusano, Vito Puliafito, Aurelio La Corte, Mario Carpentieri, Zhongming Zeng, "*Control of the skyrmion Hall angle by combining spin-Hall effect, anisotropy gradient, breathing mode and in-piane field*".
6th Italian Conference on Magnetism, Messina, Italy, January 30th - February 1st, 2019.