PERSONAL INFORMATION	Carmela Aruta	
	CNR-SPIN, Area della Ricerca di Tor Vergata, Roma	
	06 49934372	
	carmela.aruta@spin.cnr.it	
	Sex Female | Date of birth December 10, 1966 | Nationality Italian	
CURRENT POSITION SSD (if applicable)	Senior Researcher Full Time FIS/03	
RESEARCH TOPICS / EXPERIENCES	▪ Electronic properties by synchrotron spectroscopic techniques of oxides and dichalcogenides ▪ Interface properties of 2D materials ▪ Ion conducting materials for energy applications ▪ Cuprates and manganites thin films and heterostructures	
SCIENTIFIC / TECHNICAL QUALIFICATION *(source: Scopus)*	▪ H-index:	▪ 28
	▪ No. publications:	▪ 139
	▪ No. citations:	▪ 3064
THEMATIC AREA KEYWORDS *(it is possibile to select one or more than one thematic area)*	▪ Energy transition:	▪ solid oxide fuel cells ▪ surface reaction ▪ water splitting ▪ functional materials
	▪ Digital transition:	▪
	▪ Bio-pharma & health:	▪

EDUCATION AND TRAINING

1999/04/26	PhD in Physics, Department of Physics, University of Naples Federico II, Italy Thesis: Superconductivity-Magnetism Interaction in Transition Metal Borocarbides Supervisor: Prof. R. Vaglio
19/03/1992	Laurea degree in Physics, Department of Physics, University of Naples Federico II, Italy Thesis: Spectral response of hydrogenated amorphous silicon solar cells: study of material properties and interfaces Supervisors: Prof. G. Iadonisi and Prof. G. Conte

WORK EXPERIENCE

since 2021/01/01	Senior Researcher
	CNR (National Research Council), Institute for Superconductors and Innovative Materials and Devices (SPIN) Institute, Rome, Italy
From 2006/06/01 To 2020/12/31	Staff Researcher
	CNR - SPIN Institute, in Naples (2006-2012) and in Rome (since 2012), Italy
From 2004/11/01 To 2006/05/31	Tenure track researcher
	Center for Research and Development Coherentia CNR-INFM (now CNR-SPIN), Rome, Italy
From 2003/10/15	University fellowship

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To 2004/10/14	Physics Department, University of Salerno, Italy
From 2003/06/03 To 2003/10/01	Temporary position as Researcher
	CNR- IMEM, Parma, Italy
From 2002/06/10 To 2003/05/31	Professional collaboration as scientific manager of the European Network for Superconductivity SCENET-2
	CNR- IMEM, Parma, Italy
From 2000/03/15 To 2002/03/14	INFM fellowship
	University of Tor Vergata, Rome
From 1998/12/01 To 2000/03/14	Post-doc scientist
	ESRF (European Synchrotron Radiation Facility), Grenoble, France
From 1995/03/01 To 1995/12/31	Grant of CNR-FSE (European Structural Fund)
	University of Tor Vergata and La Sapienza, Rome
From 1992/09/01 To 1995/02/28	Grant of PNMA (National Plan for Innovative Advanced Materials)
	Consortium for Innovative Research in the South (CRIS) and INFM units of Naples and Salerno

MAIN ROLES AND RESPONSIBILITIES

From 2013/02/01 To 2019/01/31	▪ Deputy Director, CNR-SPIN Institute, Rome, Italy
From 2008/01/10 To 2012/10/10	▪ In charge of the x-ray diffraction laboratory, CNR-SPIN, Naples, Italy
From 2009/07/14 To 2011/10/07	▪ In charge of the pulsed laser deposition system and the photoemission spectroscopy in the MODA laboratory (Modular facility for oxide deposition and in-situ analysis of epitaxial thin films), CNR-SPIN, Naples, Italy
From 2010/07/27 To 2011/04/14	▪ Delegated to represent the CNR as a Partner of CRdC TECNOLOGIE Scarl in Naples, Italy14/04/2011 al 14/04/2011 27/07/2010 al 27/07/2010

SERVICE TO NATIONAL AND INTERNATIONAL COMMUNITY

Since 2021	▪ Board member of Structural and Dynamical Properties of Solids section of EPS-CMD (European Physical Society-Condensed Matter Division)
2020	▪ Reviewer for University of Florence for the financing of competitive projects for Temporary Researchers
2018	▪ Project evaluation of the MIUR PRIN 2017 call
From 2017 To 2020	▪ Member of evaluation committee Ph.D. Course Industrial Engineering, University of Salerno
From 2014 To 2017	▪ In charge for scientific agreement between CNR-SPIN and NAST Center (Nanoscience & Nanotechnology & Innovative Instrumentation) of University of Tor Vergata, Rome
2016	▪ Reviewer for Czech Science Foundation
2015	▪ Reviewer for Swiss National Science Foundation
2013	▪ Project evaluation for MIUR as part of the "Future in Research 2013" call
From 2009 To 2012	▪ Review Committee of ESRF for Hard Condensed Matter – Electronic and Magnetic properties section.

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From 2010 To 2012	▪ Member of ESRF Users' Organization Electronic Structure and Magnetism
From 2008 To 2011	▪ Supervision of graduate students and postdoctoral fellows, University of Salerno and Naples
From 2008 To 2009	▪ Member of the committee for disposal of disused scientific assets for CNR-INFM Coherentia
From 2007 To 2009	▪ Member of the committee for grants appointment for post-doctoral scientific research at CNR-INFM Coherentia
Since 2001	▪ Referee for international journals ▪ Invited talk and seminars at international conferences and Universities or Institutes worldwide ▪ Chair, Scientific committee and organization of international conferences and schools

TEACHING EXPERIENCE

2006	▪ Introductory Physics I, Engineering Course, University of Tor Vergata, Rome, Italy
2006	▪ Introductory Physics II, Engineering Course, University of Tor Vergata, Roma
2005	▪ Experimental Condensed Matter Physics, Engineering Course, University of Tor Vergata, Roma
2001	▪ Introductory Physics I, Engineering Course, University of Naples

MAIN RESEARCH EXPERIENCE

2023	▪ Doping effect on the hydrogen evolution reaction of MoS2 films by in operando X-ray absorption spectroscopy, peer-reviewed proposal NFFA-Trieste (Italy), main proposer, internal funds full cost
Since 2022	▪ PNNR Human Technopole, Spoke 1 Applied research, technology development and innovation, Task 1.1 Foundamental research "Study of transition metal dichalcogenide thin films for catalysis." Responsabile scientifico per le attività dell'Istituto SPIN, budget SPIN 212 k€
Since 2021	▪ Progetto Mission Innovation Piattaforma Italiana Accelerata per i Materiali per l'Energia" , participant, total budget 35.8 milioni euro
2021	▪ Polaronic effect on surface reaction properties in heavily doped epitaxial Sm-doped ceria thin films, peer-reviewed proposal NFFA-Trieste (Italy), main proposer, internal funds full cost
2019	▪ In operando on XAS solid state photo-electrochemical cells based on doped Ceria thin films, peer-reviewed proposal NFFA-Trieste, co-proposer, internal funds full cost
2018	▪ Nanoscale investigations of water-solid interfaces for filtration applications, National Science Foundation USA, participant, total budget $ 333000,00
2018	▪ Electronic properties of ultra-thin MoS2 films grown by Pulsed laser Deposition, peer-reviewed proposal NFFA-Trieste, main proposer, internal funds full cost
2017	▪ NanoMechanics: Elasticity and Friction in Nano-Objects, Department of Energy Office of Science (DOE) USA, participant, total budget $160706,34
2016	▪ Near Ambient X-ray Photoelectron Spectroscopy (NAP-XPS) and XAS study of dopant-oxygen vacancy interaction on Samarium-doped Ceria thin films peer-reviewed proposal Diamond Synchrotron (UK), main proposer, internal funds full cost

2015	▪ In situ X-ray Photoelectron Spectroscopy and XAS study of dopant-oxygen vacancy interaction on as grown samarium-doped ceria thin films, peer-reviewed proposal NFFA-Trieste, main proposer, internal funds full cost
2014	▪ Electrochemical nanowriting of superconducting tracks on La2CuO4+δ epitaxial films and La2CuO4+δ/Ce0.8Sm0.2O2 heterostructures, peer-reviewed proposal Oak Ridge National Laboratory, Center for Nanophase Materials Sciences (CNMS), main proposer, internal funds United States Department of Energy (DOE) full cost
2014	▪ HAXPES investigation of epitaxial thin films and superlattices of proton conductor perovskite oxides, peer-reviewed proposal Diamond Synchrotron (UK), main proposer, internal funds full cost
2014	▪ Orbital and magnetic coupling at the interfaces of (CaCuO2)m/(La1-xSrxMnO3)n superlattices, peer-reviewed proposal ALBA Synchrotron (Spain), main proposer, internal funds full cost
2013	▪ Oxide Interfaces: New Emerging Properties, Multifunctionality and Devices for Electronics and Energy (OXIDE), PRIN 2010-2011, participant, total budget 828.800,00 euro.
2012	▪ Nanostructured Oxides: Multi-Functionality and Applications, FIRB 2011, participant, total budget 220.360,00 euro
2010	▪ Unlocking research potential for multifunctional advanced materials and nanoscale phenomena (MAMA) Progetto FP7-REGPOT-2010-1 - Research Potential, participant, total budget 2 400 000 euro
2010	▪ Deposition and characterization of n-type organic films for electronic applications, Legge Regionale V Campania, principal investigator, 8000 euro
2008	▪ Determination of the magnetic phase diagram of SMO/LMO superlattices, peer-reviewed proposal ESRF Synchrotron (France), main proposer, internal funds full cost
2007	▪ Antiferromagnetic to Ferromagnetic transition of strained La0.7Sr0.3MnO3 thin films, peer-reviewed proposal ESRF Synchrotron (France), main proposer, internal funds full cost
2005	▪ The effects of anisotropic strain at the Mn sites in ultrathin La0.7Sr0.3MnO3 thin films, peer-reviewed proposal ESRF Synchrotron (France), main proposer, internal funds full cost
2005	▪ Strain effects on the electronic and orbital properties of La1-xSrxMnO3 (x=0.2-0.3) thin films grown on different lattice matched substrates, peer-reviewed proposal Elettra Syncrotron (Italy), main proposer, internal funds full cost
2002	▪ X-ray diffraction analysis of buried nanosized tunnel barriers in Ferromagnetic/Insulator/Ferromagnetic heterostructures made of complex oxides, peer-reviewed proposal ESRF Synchrotron (France), main proposer, internal funds full cost
2002	▪ SCENET-2 The European Network for Superconductivity FP5-GROWTH, participant, total budget 1.860.000,00 euro.
2000	▪ Structural ordering and interface morphology in [CaCuO2]n/[BaCuOx]2 artificial superconducting superlattices, ESRF Synchrotron (France), main proposer, internal funds full cost

HONOURS, AWARDS, MEMBERSHIPS, OTHER QUALIFICATIONS

2021	▪ National Scientific Habilitation as Full Professor
2019	▪ Visiting Scientist, NYU, Tandon School of Engineering, New York, USA

2013	▪ Visiting Scientist, Oak Ridge National Laboratory, USA
2009	▪ CNR short-term mobility fellowship, CNRS, Caen, France
2008	▪ European Science Foundation Short Visit Grant, ESRF, Grenoble, France
2001	▪ Visiting Scientist, ESRF, Grenoble, France
1999	▪ Bonus performance at ESRF, Grenoble, France

ADDITIONAL INFORMATION

Publications

List of the most relevant publications (up to 5)

- 1. Nan Yang, Daniel Knez, Giovanni Vinai, Piero Torelli, Regina Ciancio, Pasquale Orgiani, and Carmela Aruta, Improved Structural Properties in Homogeneously Doped Sm0.4Ce0.6O2−δ Epitaxial Thin Films: High Doping Effect on the Electronic Bands, Coatings, ACS APPLIED MATERIALS & INTERFACES 2020, 12, 47556.

- 2. Xiaorui Zheng, Annalisa Calò, Edoardo Albisetti, Xiangyu Liu, Abdullah Sanad M Alharbi, Ghidewon Arefe, Xiaochi Liu, Martin Spieser, Won Jong Yoo, Takashi Taniguchi, Kenji Watanabe, Carmela Aruta, Alberto Ciarrocchi, Andras Kis, Brian S Lee, Michal Lipson, James Hone, Davood Shahrjerdi, Elisa Riedo, Patterning metal contacts on monolayer MoS2 with vanishing Schottky barriers using thermal nanolithography, NATURE ELECTRONICS 2019, 2, 17.

- 3. Nan Yang, Yanuo Shi, Sebastian Schweiger, Evgheni Strelcov, Alex Belianinov, Vittorio Foglietti, Pasquale Orgiani, Giuseppe Balestrino, Sergei V. Kalinin, Jennifer L. M. Rupp, and Carmela Aruta, Role of Associated Defects in Oxygen Ion Conduction and Surface Exchange Reaction for Epitaxial Samaria-Doped Ceria Thin Films as Catalytic Coatings, ACS APPLIED MATERIALS & INTERFACES 2016, 8, 14613.

- 4. Nan Yang, Claudia Cantoni, Vittorio Foglietti, Antonello Tebano, Alex Belianinov, Evgheni Strelcov, Stephen Jesse, Daniele Di Castro, Elisabetta Di Bartolomeo, Silvia Licoccia, Sergei V Kalinin, Giuseppe Balestrino, and Carmela Aruta, Defective Interfaces in Yttrium-Doped Barium Zirconate Films and Consequences on Proton Conduction, NANO LETTERS 2015, 15, 2343.

- 5. Nan Yang, Alex Belianinov, Evgheni Strelcov, Antonello Tebano, Vittorio Foglietti, Daniele Di Castro, Christoph Schlueter, Tien-Lin Lee, Arthur P Baddorf, Nina Balke, Stephen Jesse, Sergei V Kalinin, Giuseppe Balestrino, and Carmela Aruta, Effect of Doping on Surface Reactivity and Conduction Mechanism in Samarium-Doped Ceria Thin Films, ACS NANO 2014, 8, 12494.

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

Rome, December 05 2023

Carmela Aruta

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