

## PERSONAL INFORMATION



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Job address: Institute for Microelectronic and Microsystems, CNR  
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www.

## ACTUAL POSITION

**Staff Researcher at National Research Council of Italy CNR,**  
at **Institute of Cybernetics "E.Caianello" from 29/01/2001 to 01/09/2013**  
at **Institute for Microelectronics and Microsystems Naples Unit from 01/09/2013**

**Associate professor in Experimental Physics of Matter**, enabled by the Ministry of Education  
University and Research (MIUR), with an Excellent rating.

### The research activity that has led over the years regards:

- Non-equilibrium properties of superconductors (1991-2005)
- Superconductive detectors of radiation/particles (1991-2005).
- Development of superconducting electronic structures (1994-2005).
- Nanotechnologies: development of solid state nanostructures through top-down processes (since 2005)
- Development of plasmonic and photonic nano-structure (since 2010)

**INTERNATIONAL PEER REVIEWED ISI JOURNALS 117 :**  
**72 IP papers +23 book chapter, 22 international journal issn total**  
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## EDUCATION AND TRAINING

**Activity period**  
1991

**Master's degree in Physics** at University of Naples - Università degli Studi di Napoli "Federico II",  
in June 1991, Thesis title: DEVELOPMENT OF A SUPERCONDUCTING TUNNEL JUNCTION  
RADIATION DETECTOR, supervisorS: Prof. A. Barone e Dr. U. Scotti di Uccio, Physics Department,  
Università degli Studi di Napoli "Federico II"., with the highest rating: 110/110 cum laude.

from 01/02/92 to 01/02/94

**PhD Scholarship** of the CNR special finalized project "Cryogenic and Superconductive Technologies"  
thesis title: "SUPERCONDUCTING DEVICES FOR SMALL SCALE APPLICATIONS"

## RESEARCH POSITIONS in Italy

**Activity period**  
from 1999 to 2001

Staff researcher at the National Institute for Physics of Matter (INFN) as a principal investigator of a project:

from 01/01/1997 to 01/01/1999

Staff researcher at the National Institute for Astrophysics, INAF, Astronomical Observatory of  
Capodimonte, principal investigator of a project : "The next generation of Astronomical Detectors: 3d-  
Superconducting Tunnel Junction Detectors".

## RESEARCH POSITIONS ABROAD

**Activity period**  
From 01/08/94 to 01/08/96

**staff researcher at University of Oxford (UK)**, Nuclear & Astrophysics Laboratory, as a Marie Curie  
Individual Fellowship (category 30in the framework of Human Capital and Mobility).

From 01/09/1996 to 31/12/1996

### Catania Headquarters CUU: **H5D5WS**

CNR - Institute for Microelectronics and Microsystems  
VIII Strada, 5 (Zona Ind.) - 95121 Catania, Italy  
Tel. +39 095 5968211 - Telefax +39 095 5968312

**C.F. 80054330586 – P. IVA 02118311006**  
**PEC: protocollo.imm@pec.cnr.it**  
**www.imm.cnr.it**

### Units

**Agrate Brianza** CUU: **FON4XS**  
Via C. Olivetti, 2 - 20864 Agrate Brianza (MB)  
Tel. +39 039 6037489

**Lecce** CUU: **E8LEE4**  
Str. Prov. Lecce-Monteroni km 1,2 - 73100 Lecce  
Tel. +39 0832 422517

**Bologna** CUU: **BFREQE**  
Via P. Gobetti, 101 - 40129 Bologna  
Tel. +39 051 6399143

**Napoli** CUU: **3C4X3M**  
Via P. Castellino, 111 - 80131 Napoli  
Tel. +39 081 6132370

**Catania** CUU: **IUXAKK**  
Via S. Sofia, 64 - 95123 Catania  
Tel. +39 095 3785424

**Roma** CUU: **GE55TO**  
Via del Fosso del Cavaliere, 100 - 00133 Roma  
Tel. +39 06 49934533

**Visiting scientific** at Electrotechnical Laboratory (ETL), Tsukuba-Japan , for a bilateral project :  
*superconducting radiation detectors and related superconducting electronics*

**PI / Italian representative of European Project**

**Activity period**

from 01/01/2008 to 30/06/2010

**Italian representative**

**title:** SHRINK-PATH OF ULTRA-LOW POWER SUPERCONDUCTING ELECTRONICS  
EUROPEAN PROJECT FP7 - Support Action ICT-2007-1.3.1, contract number: GA215297,  
(€): 550.00

from 15/11/2002 to 31/03/2006

**title:** SCENET 2- THE EUROPEAN NETWORK FOR SUPERCONDUCTIVITY  
EUROPEAN PROJECT FP5-FP6, contract number: G5RTCT200205077  
(€): 1.860.000 for the entire network

from 01/10/1997 to 30/09/1998

**Principal Investigator**

**title:** FURTHER DEVELOPMENT OF PARTICLE & NUCLEAR DETECTORS BASED ON  
SUPERCONDUCTING  
TUNNEL JUNCTIONS  
EUROPEAN PROJECT FP4, contract number: GT953889, (€): 140.000

from 01/08/1994 to 30/05/1996

**title:** DEVELOPMENT OF PARTICLE & NUCLEAR DETECTORS BASED ON  
SUPERCONDUCTING TUNNEL JUNCTIONS  
EUROPEAN PROJECT FP3, contract number: CT941220, (€): 161.316

**Local representative of Italian project**

**Activity period**

from 01/11/2012 to 30/05/2015

**Local representative**

**Title:** Smart Health, the National Operational Program "Research and Innovation" , PON Ricerca e  
Competitività , (€): 156.123

from 01/11/2012 to 31/12/2015

**Title:** OPTIMA – Optical technology for Marine and Medical Application, the National Operational  
Program "Research and Innovation" , PON Ricerca e Competitività , (€): 100.000

from 01/12/2006 to 01/12/2008

**Title:** Mask development for Spintronic devices, regional project (€): 20.000

**Participation in national and international projects**

**Activity period**

from 01/01/2006 to 01/04/2009

**participant**

**Title:** SINPHONIA-Single-photon nanostructured detectors for advanced optical applications  
European project, SIXTH FRAMEWORK PROGRAMME, PRIORITY 3 :Nanotechnologies and  
nanosciences  
(€): 3.044.979

from 11/05/2004 to 11/11/2006

**Title:** INTEGRATION OF TECHNOLOGIES FOR THE MANUFACTURE OF ADVANCED CRYE-  
ELECTRONIC DEVICES  
National project MIUR, (€): 300.000

from 01/01/2003 to 31/12/2008

**Title:** INNOVA- PLURITEMATIC LABORATORY OF ADVANCED DIAGNOSTICS  
Regional project, finanziamento Regione Campania (€): 2.193.000

from 01/01/2003 to 31/12/2008

**Title:** FABRICATION AND CHARACTERIZATION OF SUPERCONDUCTIVE RADIATION  
DETECTORS FOR MASS SPECTROMETRY  
National project, FIRB, (€): 150.000

from 01/01/2002 to 31/12/2004

**Title:** CRYDET - CRYOGENIC DETECTORS FOR APPLICATIONS  
National project INFN (€): 310.000

from 01/01/1998 to 31/12/1998

**Title:** AN EXPERIMENTAL METHOD TO DETERMINE EFFECTIVE DISSIPATION IN AN MQC  
EXPERIMENT  
Bilateral project: IC-CNR/INFN

from 01/01/1998 to 31/12/2000

**Title:** STJ-DETECTORS  
National project, INFN Gruppo V Sez. Napoli

from 01/01/1998 to 31/12/2001	<b>Title:</b> SCENET-1 1st EUROPEAN NETWORK OF EXCELLENCE IN SUPERCONDUCTIVITY 4th Frame Work Programme EU project reference n. 22804 ESPRIT 4, (€): 1.000.000
from 01/01/1998 to 31/12/2001	<b>Title:</b> Network Europeo TMR CRYOGENICS DETECTOR European project
from 01/01/1995 to 31/12/1997	<b>Title:</b> SUPERCONDUCTIVE CRYOGENIC DETECTORS (Sucrydet) National project INFN Gruppo V Sez. Napoli
from 01/01/1994 to 31/12/1994	<b>Title:</b> JOSEPHSON DETECTORS National project INFN Gruppo V Sez. Napoli
from 01/01/1992 to 31/12/1994	<b>Title:</b> SUPERCONDUCTING RADIATION DETECTORS AND RELATED SUPERCONDUCTING ELECTRONICS Bilateral project Progetto Bilaterale IC-CNR Italy-Japan
from 01/01/1991 to 31/12/1993	<b>Title:</b> SUPERCONDUCTIVE DETECTORS (SU.DET) National project INFN Gruppo V Sez. Napoli
from 01/01/1995 to 31/12/2000	<b>Title:</b> Network Europeo HCM CRYOGENICS DETECTORS European project
from 01/01/2002 to 31/12/2006	<b>Title:</b> European Research and Training Network CRYODETECTOR FOR APPLICATIONS European project

## RESPONSIBILITY

### Activity period

From 01/04/2018	Scientific Coordinator of the Institute for Microelectronics and Microsystems of the application area: Plasmonic and nanophotonics.
from 01/01/2018	Responsible of the CNR-Na Unit of the Italian Society of Electronics Association SIE
from 01/09/2013 to now	Responsible of the "Electronic Scanning Lithography Laboratory" (SEBL Lab) of the IMM-CNR Naples Unit
from 01/01/2009 to 31/12/2012	Responsible of the laboratory "Nanotechnologies and Materials for Composite Devices " CNR-ICIB
from 01/12/2006 to 31/12/2008	Responsible for the "Cooperation agreement between CNR-INFN TASC Lab". CNR-ICIB
from 30/03/2005 to 31/08/2013	Responsabile of an infrastructure "Electron Beam Lithography System" founded by the CrdC "Center of Competence Campania Region" CNR-ICIB
from 01/01/2001 to 01/01/2005	Responsible of the "Low Temperature Detectors" laboratory CNR-ICIB

## DIDACTIC AND TRANSFER ACTIVITY

### Activity period

from 01/06/2015 to 20/07/2015	<b>Adjunct Professor</b> <b>At :</b> Department of Engineering of University of Naples "Parthenope" <b>course:</b> "Thin film deposition techniques for integrated and non-integrated optical devices"
from 01/09/2008 to 01/09/2010	<b>At:</b> Department of Engineering, University of Naples "Federico II" <b>Course:</b> "Physics Laboratory"
from 01/07/2008 to 30/09/2013	<b>At:</b> Department of Engineering, University of Naples "Federico II" <b>Course:</b> "Micro and Nano patterning with Electron Beam and Ion Beam Lithography for top down integration technology" for Phd Student
from 01/09/2006 to 01/09/2008	<b>At:</b> Department of medicine and Surgery, University of Naples "Seconda Università degli Studi di Napoli" <b>Course:</b> "medical physics "
from 01/09/2001 to 01/09/2006	<b>At:</b> Department of Engineering, University of Naples "Federico II" <b>Course:</b> Physics I:mechanics
from 01/09/2000 to 01/09/2001	<b>At:</b> Department of Engineering, University of Naples "Federico II" <b>Course:</b> Physics II: electromagnetism

from 01/09/1993 to 01/09/1994

**At:** Department of Engineering, University of Naples "Federico II"  
**Course:** Physics II: electromagnetism

**Tutor**

**Activity period**

**PhD Thesis**

from 2015

Phd degree in Engineering, University of Calabria - XXXI cycle  
**Student:** Valentina Di Meo

from 01/10/2008 to 01/07/2011

Phd degree in Engineering, "Technologies for Materials, Sensors and Imaging" at University of Naples "Federico II" – XXIV cycle ,  
**Student:** Nassim Chikhi  
**Title:** ELECTRON-BEAM LITHOGRAPHED METAMATERIAL DEVICES OPERATING IN THE TERAHERTZ REGION

from 01/10/2007 to 01/07/2010

Phd degree in Engineering, "Technologies for Materials, Sensors and Imaging" at University of Naples "Federico II" – XXIII cycle  
**Title:** DISPOSITIVI SUPERCONDUTTORI MICRO E NANOMETRICI BASATI SULL'EFFETTO JOSEPHSON PER MICROSCOPIA MAGNETICA  
**student:** Pravin Walke

from 01/10/2007 to 01/07/2010

Phd degree in Engineering, "Technologies for Materials, Sensors and Imaging" at University of Naples "Federico II" – XXIII cycle  
**Title:** MAGNETIC AND MAGNETOTRANSPORT PROPERTIES OF LSMO/PERMALLOY HETERO NANOSTRUCTURES  
**Student:** Vito Pagliarulo

**Master thesis**

from 01/04/2011 to 31/07/2011

Department of Engineering, University of Naples "Federico II"  
**title:** FABBRICAZIONE E CARATTERIZZAZIONE DI STRUTTURE OLIMERICHE/METALLICHE PER APPLICAZIONI IN CELLE SOLARI  
**student:** Rosario Aliperti

from 01/04/2011 to 31/07/2011

Department of Engineering, University of Naples "Federico II"  
**Title:** FABBRICAZIONE E CARATTERIZZAZIONE DI STRUTTURE METALLO-DIELETTRICHE PER FORTONICA INTEGRATA  
**student:** Alessandro Ferrara

from 01/10/1998 to 28/01/1999

Department of Engineering, University of Naples "Federico II"  
**Title:** GIUNZIONI SUPERCONDUTTIVE AD EFFETTO TUNNEL COME RIVELATORI DI RADIAZIONE X E UV  
**student:** Maria Rosaria Russo

from 10/10/1994 to 31/08/1995

Department of Physics , University of Oxford , UK , Nuclear & Astrophysics Laboratory  
**title:** "SERIES ARRAYS OF AL SUPERCONDUCTING TUNNEL JUNCTIONS AS PARTICLE DETECTORS", Trinity Term 1995 Magdalen College Oxford (UK)  
**student:** Steffy Wänninger

**Reviewer appointments**

evaluation of the proposals

**Activity period**

from 20/02/2013 to 18/03/2013

**Descrizione:** Valutazione MIUR "Futuro in Ricerca 2013"  
codice: RBF13QEE2  
**Finalità:** valutazione della proposta sintetica  
**Ruolo svolto:** Referee

from 05/06/2015 to 26/06/2013

**Descrizione:** Valutazione POLITO "La ricerca dei talenti"  
Codice:drf3e4cb  
**Finalità:** valutazione del progetto  
**Ruolo svolto:** Referee

from 1995

Evaluation of

**Ruolo svolto:** Reviewer

Elenco riviste: Appl. Phys. Rev. Journal of Appl. Phys., Physical rev. Lett., Nucl.Inst.and Method.  
Acs nano, Small, Nanotechnology, Nanoscale, Christal

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#### COMMISSION appointments

##### Activity period :

from 10/10/2014

As a Member

Selection Committee for a selection procedure for a research position  
CNR- IMM 07/2014/NA per l'Istituto per La Microelettronica e Microsistemi

from 02/09/2013 to 11/09/2013

Selection Committee for a selection procedure for 2 research positions  
SPIN 011-012/2013 NA per due assegni di ricerca per l'Istituto SPIN.

from 18/12/2012 to 31/12/2012

Selection Committee for a selection procedure for 2 research positions  
SPIN 03/2012 NA per due assegni di ricerca per l'Istituto SPIN.

13/10/2011

Selection Committee for a selection procedure for a research position ICIB-001/2011 Istituto ICIB.

from 13/01/2011 to 13/02/2011

Selection Committee for a selection procedure for a research position  
SPIN 008/2010 NA per un posto di Ricercatore a tempo  
determinato per l'Istituto SPIN.

from 13/10/2009 to 16/10/2009

Selection Committee for a selection procedure for a PhD position  
XXV ciclo del dottorato di ricerca internazionale in Tecnologie Innovative per Materiali, Sensori ed  
Imaging

from 24/10/2008 to 26/05/2009

**Descrizione:** membro della commissione bando 364.13-area disciplinare "scienze fisiche"  
raggruppamento omogeneo 7 posti di ricercatore cnr tempo indeterminato  
**Finalità:** Attribuzione di 7 posti a TI con profilo ricercatore III livello per il CNR  
**Ruolo svolto:** Membro

from 01/07/2008 to 09/07/2009

**Descrizione:** Membro del gruppo di lavoro per il progetto del Dipartimento Materiali e Dispositivi del  
CNR nell'ambito del PON Ricerca e Competitività (QSN 2007-2013)  
Prot. Rif. 1354/08 rilasciato da Dipartimento Materiali e Dispositivi del 07/08  
**Ruolo svolto:** Membro

from 01/10/2007 to 30/10/2007

**Descrizione:** Commissione di Collaudo per una grande attrezzatura:  
criostato a smiscelamento He3-He4 temperatura 7 mk  
**Finalità:** collaudo di un criostato a smiscelamento He3-He4, presso la seconda università di Napoli SUN,  
Facoltà di Ingegneria  
**Ruolo svolto:** Responsabile  
**Periodo di attività:**

01/01/2004

**Descrizione:** Membro di commissione per il concorso di cui al bando n. 17/04/ICIB per il conferimento di  
un assegno di ricerca  
Prot. N. 230/04 Istituto di Cibernetica, del 2004  
**Finalità:** Assegnazione di un assegno di ricerca  
**Ruolo svolto:** Membro

#### ORGANIZZAZIONE CONGRESSI SCIENTIFICI

##### Periodo di attività:

**Dal:** 22/07/2007 **al:** 01/10/2008

Organizzatore

**Titolo evento:** Conferenza Internazionale EUROFLUX2008: SUPERCONDUCTIVE ELECTRONICS:  
FROM PHYSICS TO

DEVICES, Napoli 29 settembre 1 ottobre 2008

**Congresso:** International Conference

**Luogo:** Napoli

**Attività svolta:** co-CHAIR del Congresso Internazionale

**Dal:** 01/11/2002 **al:** 30/09/2003

**Titolo evento:** 6th European Conference on Applied Superconductivity - EUCAS 2003

**Congresso:** EUCAS

**Luogo:** Sorrento, (napoli) Italy

**Attività svolta:** membro comitato organizzatore

**Dal:** 01/01/1998 **al:** 30/09/1998

**Titolo evento:** International Workshop on Macroscopic Quantum Tunneling and Coherence, Napoli June  
10-13, 1998

**Congresso:** congresso internazionaee MQC

**Luogo:** Napoli, Italy

Dal 21/07/2009 al 21/09/2009

**Attività svolta:** membro dell'organizzazione

**Titolo evento:** Conferenza Internazionale EUROFLUX2009: SUPERCONDUCTIVE ELECTRONICS: FROM DEVICES TO CIRCUITS AND SYSTEMS, Avignone (Francia) 20-23 settembre 2009

**Luogo:** Avignone (Francia)

**Attività svolta:** programm chair

**LEZIONI MAGISTRALI AD INVITO  
E KEYNOTE IN CONGRESSI  
INTERNAZIONALI**

**Tipologia:** Invited Speaker

**Congresso:** Scuola biosensori

**Contributo:** Top down Nanofabrication for Optical Biosensors

**Data:** Italy 12/2017

xco

**Congresso: Italian National Conference:** FisMat2015

**Contributo:** A plasmonic fiber-optic nanoprobe for sensitive detection of cancer biomarkers

**Data:** Italy 09/2015

**Congresso: International Conference on:** 2nd International Conference and Exhibition on Lasers, Optics & Photonics(Optics-2014)

**Contributo:** New functionalities in optical fibers using "Lab on Fiber" technology "

**Data:** Philadelphia (USA) 8-10 September 2014.

**Congresso: Italian National Conference:** Fotonica 2014

**Contributo:** All in Fiber Nanophotonic Sensors

**Data:** Napoli 14/05/2014

**Congresso: International Conference on " NanoTechnology " Italy 2011**

**Contributo:** Lab on Fiber Technology for Sensing Applications

**Data:** Mestre 2011

**Congresso: International Conference on " Recent Trends in Nanomagnetism, Spintronics and their Applications "**

**Contributo:** NanoSQUID sensors for magnetic nanoparticle detection.

**Data:** Ordizia, Spain 09/2009

**Congresso: : International Conference on :** 6th European Conference On Applied Superconductivity

**Contributo:** Dual-Detector For Simultaneous Time And Energy Detection.

**Data:** Sorrento 15/09/2003

**Congresso: : International Conference on :** 5th European Conference On Applied Superconductivity

**Contributo:** Fast Josephson Cryodetector for Time of Flight Mass Spectrometry

**Data:** Copehngahen 28/08/2001

**Congresso: Italian National Conference :** SATT 9 Congresso Italiano di Superconduttività ad Alta Temperatura di Transizione 1997

**Contributo:** Rivelatori Superconduttivi

**Data:** 06/10/1998

**Congresso: : International Conference on :Superconducting Materials: Advances In Technology And Applications**

**Contributo:** Cryogenic Detector Based On Superconducting Tunnel Junction

**Data:** 10/07/1998

**Congresso: : International Conference on : Superconducting Electronic Devices For Radiation Detection**

**Contributo:** Series Array Of Superconducting Tunnel Junctions As Phonon Sensor In A Dark Matter Detector

**Data:** Fukoka, Japan, 1997

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**DICHIARAZIONE SOSTITUTIVA DI CERTIFICAZIONE / ATTO DI NOTORIETÀ**

(artt. 46 e 47 del DPR n. 445/2000)

La Sottoscritta EMANUELA ESPOSITO codice fiscale SPSMNL65C71F839G nata a NAPOLI prov. NA il 31/03/1965 residente a NAPOLI  
In via LUIGI CALDIER n. 190 cap 80128  
tel. 3286146316 , email emanuela.esposito@cnr.it  
consapevole delle sanzioni penali nel caso di dichiarazioni mendaci, di formazione o uso di atti falsi (articolo 76, DPR n. 445/2000)

**DICHIARA**

che quanto sopra riportato corrisponde a verità.

Napoli

In fede Emanuela Esposito

