
G. Bisoffi - CURRICULUM VITAE

Giovanni Bisoffi
CURRICULUM VITAE

PERSONAL INFORMATION

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Nationality	Italian
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Birth date	NOVEMBER 14, 1962
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EDUCATION

• Date	March 1987
Institution	Physics Course at the Faculty of Science (University of Padova, I)
• Diplome	Degree in Physics

• Date	July 1989
• Institution	Ruprechts-Karl Universität and Max Planck Institut für Kernphysik in Heidelberg (D)
• Diplome	PhD in Physics

LANGUAGES

MOTHER TONGUE	ITALIAN
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OTHER LANGUAGE (CERTIFICATE)	ENGLISH (CERTIFICATE OF PROFICIENCY IN ENGLISH, UNIVERSITY OF CAMBRIDGE)
OTHER LANGUAGE (CERTIFICATE)	GERMAN (ZERTIFIKAT "B2", GOETHE INSTITUT)

CAREER STEPS

May 1988 – Nov 2000	TECHNOLOGICAL RESEARCHER OF LEVEL 3 (INFN) – TITLE OF "TECHNOLOGICAL RESEARCHER"
Dec 2000 – Dec 2007	TECHNOLOGICAL RESEARCHER OF LEVEL 2 (INFN) – TITLE OF "FIRST TECHNOLOGICAL RESEARCHER"

Since Jan 2008	TECHNOLOGICAL RESEARCHER OF LEVEL 1 (INFN) – TITLE OF "DIRECTOR OF TECHNOLOGICAL RESEARCH"
COORDINATION AND DIRECTION OF FUNCTIONAL UNITS AND PROJECTS	
• Dates	Since October 1, 2005
• Role	Head of the Accelerator Division at INFN-Laboratori Nazionali di Legnaro (Encl.5)
• Structure Breakdown	The Accelerator Division is structured in 6 units (and 3 sub-units), named "Accelerator Operation", "Sources and Injectors", "Accelerator Physics and Technology", "Electrostatic Accelerators for Applications", "Research and Development", "Machine Technical Plants"
• Personnel	50 individuals: 25 physicists and engineers, 24 technicians e 1 secretary
• Main duties and responsibilities	<p>The candidate has the full responsibility over accelerator-related activities at Laboratori Nazionali di Legnaro (LNL), in particular those made available to national and international users. He takes care of their efficiency and operational reliability, within the yearly budget made available for the structure (1,3 M€ on average).</p> <p>He responds directly to the director of LNL and is an active member of the Laboratory Council. He reports periodically about the state and plans of accelerator activities to the international committees PAC (Programme Advisory Committee) e CVI (International Evaluation Committee of INFN). He stays in close contact and collaboration with the Heads of the Research Division and Technological Division, as well as with physicists, engineers and technicians of the Laboratory.</p> <p>He coordinates the management of the local accelerator facilities, as well as the related research and development. The unit heads, taking care of accelerator operation, beam dynamics and diagnostics, vacuum systems, radiofrequency, control and cryogenics, technical plants, report to him.</p> <p>He has a leading role in the strategic planning of the Accelerator Division (in the short and medium terms) and in the related operational decisions: in particular the upgrade projects of PIAVE and ALPI linacs and the SPES project for a mid-term RNB facility at LNL. He proposes and manages a budget for operation, research and activities related to the realization of new accelerators.</p> <p>He promotes the potentialities and the projects of LNL in the field of particle accelerators through national and international collaborations and through the organization of meetings and conferences (e.g. he promoted the "International Conference on Heavy Ion Accelerator Technology", hosted by LNL in June 2009 with his chairmanship).</p>
• Main developments in the structure	At the beginning of his mandate in 2005, LNL accelerators are in a critical moment: the electrostatic accelerator Tandem XTU cannot exceed the 80% of its nominal voltage, the SC linac ALPI is going through a very delicate maintenance of its cryogenic system, the SC injector PIAVE (of which the candidate has been project leader till then) is in the commissioning phase. Through a careful coordination of the activities of all the Division units, the situation is fully recovered at the end of 2006: the Tandem is back to its full acceleration voltage (14,5 MV), ALPI reaches a record accelerating voltage (49 MV), while PIAVE is fully operational, with an initial selection of beams for the LNL users community. Since then, Tandem, PIAVE and ALPI accelerators worked with a very high degree of availability. Since 2013, it was decided to work with ALPI and PIAVE every second semester, while the Tandem worked continuously, so as to both spare on the LNL electricity bill (at the advantage of SPES budget) and to devote more manpower to the project itself.

•Date	September 19, 2003 – September 30, 2005
• Role	Deputy Director of Laboratori Nazionali di Legnaro (INFN) – Aiuto di Direzione
• Main duties and responsibilities	"Planning of the LNL activities" is delegated by the Director to the candidate
• Activities	The appointment letter mentions the aim of making the initiatives of the Divisions, on the priority activities planned by the Director, sharper and better coordinated. He coordinates the hardware commissioning of those components which shall allow the linac ALPI to be fully operational together with the injector PIAVE. This activity is broken down in a series of projects: 1. Operation of the ECR source on the HV platform; 2. PIAVE; 3. The low velocity section of ALPI; 4. The cryogenic fluid distribution system. He coordinates the sharing of the manpower in support to these projects, in respect of the duties related to the management of the laboratory structures and the operational machines. He reports to both the Director of LNL and to the Users' Committee, which evaluates these activities quarterly.

•Dates	May 6, 2004 – September 30, 2005
• Role	Leader of the PIAVE Project and Head of the Unit ITAM
•Dates	December 5, 2002 – May 5, 2004
• Role	Deputy Head of the PIAVE Project
• Structure Description	The ITAM Unit is the main operational structure, taking care of the setup and full commissioning of the heavy ion injector PIAVE.
• Personnel	<u>4 individuals</u> (2 physicists and 2 engineers) in the Unit; <u>30 individuals</u> (20 physicists and engineers and 10 technicians) in the PIAVE project
• Main duties and responsibilities	In the final phase of the production of the SC RFQ cavities (of which the candidate has had since the beginning the full responsibility), he takes care of the whole injector project, as the Deputy Head and then as the Head of the project. In particular, he coordinates and controls the various project activities, in close coordination with the people in charge of each of them (beam dynamics, diagnostics, cryogenics and cryostats, rf equipment, vacuum and control systems). The coordination activity is conducted also through twice-monthly meetings. He coordinates the workplan of physicists, engineers and technicians in agreement with the Head of the Accelerator Division and in respect of the operational priorities of the Tandem and ALPI accelerators.
• Main developments	<ul style="list-style-type: none"> - Completion of the second of the two SRFQ's; test of both in the operational environment; fulfillment of the alignment specs; - Commissioning of the cryogenic system, in respect of the tough specifications of maximum pressure variations; - Installation and tests of the QWR SC resonators; - Debugging of the SRFQ cryostat; - Infrastructure preparation of the injector hall. <p>In Summer 2005 this preparatory work is concluded: the first beam tests have been performed and are conform to the project specifications. In Spring 2006, the commissioning is declared successfully concluded with the realization of the first officially experiments, approved by the PAC committee.</p>

**PROJECT AND REALIZATION OF
ACCELERATING FACILITIES**

•Date	Since 2011
• Role	In SPES: Accelerator Coordinator, Head of the Project Management Office, Head of Work-Package "RNB Accelerator"
• Topic	Project of Radioactive Ion Beam Facilities

• Goals	Working in close relationship with the Project Leader, who has a Nuclear Physics background, he coordinates all work-packages related to the construction of the accelerator, i.e. Control (WP-B4), Cyclotron (WP-B5), Exotic Beams (WP-B6), Beam Transport and Selection (WP-B7), RFQ (WP-B8), Mechanical Engineering (WP-B10), Vacuum Systems (WP-B11), while he leads WP-B9 (RNB Accelerator). He has been appointed in 2012 by INFN to be a member of the cost evaluation committee of the project. He leads the Project Management Office.
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•Date	1995-2002
• Role	Realizations in the field RF Superconductivity
• Role	The very first SC RFQs ever built worldwide for an operation-oriented accelerator; they are the first accelerating elements of the Heavy Ion Injector PIAVE.
• Topic	Thanks to the heavy ion injector PIAVE, the LNL heavy ion accelerator complex accelerates masses beyond $A=100$ with a significant increase of beam current on target of all ion species. The SC RFQ's work in CW mode, consistently with the ALPI booster. They are the first SC RFQ's built worldwide with the goal of going beyond the R&D phase and to accelerate beams on a working accelerator. Their design had to be a successful compromise between the technologies and the project choices of typical NC RFQ's with the best technologies and design choices of superconducting resonators.
• Design (1995-1996)	Starting from the beam dynamics design, setup by the LNL experts, the candidate has taken care of the RF and mechanical project of the SC RFQ's since the very beginning. Main steps: <ul style="list-style-type: none"> - analytical and computational optimization of the cavity geometry with respect to the construction options, maximum surface EM fields, stored energy, cavity size, cryostat connections, mechanical vibrations, frequency tuning; - detailed engineering and design. In this phase the candidate has received the collaboration of 1 physicist and 1 engineer and of that of the Department of Mechanical Engineering of the Universities of Padova and Ferrara, and the Department of Electronic Engineering of the University of Naples (n.3 degree these have been written in this context).
Prototype development (1996-1997)	<ul style="list-style-type: none"> - Development of a full scale stainless steel prototype of cavity SRFQ2 to check all the realization steps. - Coordination of the project of cavity SRFQ1, carried out in collaboration with the University of Kyoto (J) <i>In this phase the candidate has received the collaboration of two physicists of the Kyoto University (Nuclear Science Research Facility), in the framework of a collaboration of which he carries the scientific responsibility; two mechanical technicians of LNL; department of Mechanical Engineering of the Universities of Padova and Ferrara; one scientist of the Institute for Theoretical and Experimental Physics (Moscow, Russia) and one physicist of LNL. He has closely followed and chaired the complex Electron Beam Welding phases of the cavity components, performed at a dedicated company.</i>
Realization and tests (1997-2002)	Activities chaired by the candidate: <ul style="list-style-type: none"> - All possible tests on the stainless steel model (EM field distribution, frequency tuning, measurement of mechanical vibrations, control of EM frequency sensitivity with respect to vacuum and external pressure, temperature change, chemical etching); - Realization a a 1:2 Al model of SRFQ1; - Executive project of SRFQ2; - Construction of SRFQ2 in Nb and Ti, with the contribution of DESY and CERN;

	<ul style="list-style-type: none"> - Setup of the test laboratory and realization of the 4 K tests of SRFQ2, exceeding the specifications in terms of accelerating field; - Executive project of SRFQ1; - Construction and similar tests on SRFQ1 <p>Both RFQ's exceed the specifications in terms of accelerating field and are ready to be tested and commissioned in the accelerator hall.</p>
Design and construction of the Ladder resonator (2000-2007)	A novel very compact superconducting resonator (called Ladder cavity), aimed at accelerating proton beams with a relativistic factor $\beta=0,12$, has been proposed designed, built and successfully tested by the candidate and coworkers. It is an interesting option to replace NC DTL structures after a proton RFQ, leaving the option open of a fully SC linac. The structure was developed in the Eurisol accelerator framework.

•Dates	1994-1995
• Role	Technological Researcher in the LNL Radiofrequency Group
• Responsibilities	Development of a prototype of SC RFQ
• Activity	He optimizes with analytical and computational methods a SC RFQ prototype and develops three different AI models, followed their realization, conducted the experimental tests. Leader of the Radiofrequency Team of the "Progetto Nuovo Iniettore (PIAVE)" (Encl.12)
•Dates	1992-1993
• Role	Technological Researcher of the ALPI Project
• Responsibilities	Member of the RF Group in the commissioning of the ALPI linac
• Activity	He is a member of the commissioning group of the ALPI linac with respect to all its components (radiofrequency, beam transport, diagnostics, cryogenics, bunching, magnets and vacuum), during all the physics experiments performed during the accelerator test phase. He writes the operation manual of the accelerating resonators.

•Date	2001-2010
• Role	Work-Package leader of the SPES and Eurisol-DS projects
• Topic	Project of Radioactive Ion Beam Facilities
• Activity	<p>Within the Technical Committee of the SPES project (2002-2005), aimed at building a RIB Facility at LNL, he leads the task "Determination of cost and time schedule of the Project".</p> <p>Since 2006: Leader of the task "RNB Accelerator" of the SPES Project.</p> <p>The candidate takes care of the best adaptation of the PIAVE-ALPI facility for the acceleration of exotic species generated in the production target. He has written a conceptual project and then chaired the development of this part of the Technical Design Report, evaluated cost and time schedule, in accordance with the regular and continued use of the linacs for the current scientific activity hosted by LNL.</p> <p>1. Eurisol-DS</p> <p>Within the European project "Eurisol-DS", aimed at the design of a RNB facility with a primary proton linac with energies up to 1 GeV, he is the leader of the Italian team in the Work-Package 6 (RNB Accelerator). He coordinates a group of 3 physicists for the design of the accelerator front-end, based on SC RFQ's.</p> <p><u>Invention and construction of a low-beta resonator for high-current linacs</u></p> <p>In the SPES and Eurisol-DS frameworks, the candidate has proposed and developed a fully innovative resonator for the very low beta part of the driver accelerator. This resonator, called "Ladder" cavity, is extremely compact and efficient and would allow</p>

	significant saving in the accelerator cost. He has coordinated the collaboration of 1 physicist and followed two degree theses in Physics and Mechanical Engineering.
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•Dates	1989-1991
• Role	Design and Construction of an ECR Ion Source
• Topic	Project, installation and tests of an ECR Ion Source at LNL
•	He takes care of the final phase of the project and the installation of the ECRIS in a test laboratory. He is in charge of the project of the beam extraction system: his design is adopted also by the SC-ECR group at MSU (USA). His participation ceases after the successful commissioning of the ion source with beams of noble gases.

•Date	1987-1989
• Role	Ion cooler storage rings (PhD thesis)
• Topic	Development of the setup for maximizing the amount of beam current stored in the heavy ion storage ring TSR (Test Storage Ring) at the MPI-K in Heidelberg.
• Activity	He develops the project and performs the related simulations; adapts a resonant cavity acquired from CERN to the project purpose, optimizing its phase and amplitude docking systems. He is member of the TSR commissioning team, where a beam current increase of a factor 800 is achieved, in agreement with his predictions. He has evaluated analytically the limit of maximum current which can be stored in the ring, with respect to space charge and collective instabilities. He has taken active part in the whole ring commissioning, including the very first experiments of heavy ion electron cooling.

•Date	1986-1987
• Role	Mass spectrometers (degree thesis)
• Topic	Evaluation of high voltage (HV) insulation in high vacuum, within the project CAMEL, a high resolution heavy ion mass spectrometer
• Activity	Analysis of the HV performance of a large parallel plate capacitor. Investigation of the electrostatic field distribution, setup and realization of the experiments. These results are still a reference in the relevant literature. They are, e.g. used in the experimental phase of the Neutral Beam Injector of the ITER project, in a presently running collaboration between INFN and CNR (National Research Center).

**MONITORING AND EVALUATION
OF INTERNATIONAL PROJECTS
PARTICIPATION IN SCIENTIFIC
COMMITTEES**

•Date	Since 2011
• Role	Scientific Evaluator of the Russian Skolkovo Innovation Center
	The Skolkovo Innovation Center is a scientific and technological centre for the development and commercialisation of advanced technologies. Project approval is submitted to the assessment of international referees. The candidate belongs to the refereeing group "Nuclear Technologies".

•Date	2014-2020
• Role	Member of the Board of the EPS-AG (Accelerator Group of the European Physical Society)
	EPS-AG fosters the most efficient and highest quality dissemination of scientific information in the field of accelerator in Europe and world-wide, particularly through the scientific organization of the International Particle Accelerator Conferences (IPAC). Within EPS-AG, the candidate is member of a team, charged to organize the publication

	of IPAC proceedings on a refereed journal (to the benefit of the whole community of particularly young researchers).
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•Date	Since 2012
• Role	Member of the MAC of INFN
	The committee is charged to assess: innovation developments in the field of accelerators done by INFN labs and units; follow-up in the realization of special projects, with funds to INFN by the Italian Minister for Research; extraordinary maintenance and upgrades, in the field of accelerators, requested by the national laboratories of INFN.

•Date	2010-2014
• Role	Member of the TAC of ESS
	Together with dr. Caterina Biscari (INFN-LNF, now director at ALBA-CELLS, Barcelona), he represents INFN in the international Technical Advisory Committee of the European Spallation Source, in construction in Lund (S). Within the committee, he was charged – in particular – of evaluating the accelerator front-end (source and normal conducting injector) and the development on the superconducting spoke resonators.

•Date	2008-2013
• Role	Member of FAIR-MAC
	FAIR-MAC is the Machine Advisory Committee nominated by the International Steering Committee of FAIR, the Facility for Antiproton and Ion Research which is being built in Darmstadt (D). It has the role of reviewing the accelerator TDR and following up the project realization. The Committee was chaired by Dr. Lyn Evans, project leader of the Large Hadron Collider at CERN.

•Date	2006-2012
• Role	Member, nominated by the President of INFN, of the Scientific-Technical Committee of RFX Consortium
• Main Responsibilities	Evaluation of the working programme of the RFX Consortium, within the European collaboration EFDA in the framework of Controlled Thermonuclear Fusion and the ITER experimental reactor.
• Main related activities	INFN participates in the RFX Consortium through the joint project and construction of the Neutral Beam Injector (NBI) into the ITER plasma. The Consortium has the leading role in Europe for the construction of the NBI: INFN contributes with studies on beam extraction and acceleration, cryogenic pumping and high voltage insulation in high vacuum. The Committee meets twice-yearly to assess both the completed activity of the previous year and the planned activity of the following one.

•Date	2005-2010
• Role	Member of the Scientific Advisory Board of PAC (Particle Accelerator Conference) and EPAC (European Particle Accelerator Conference)
• Main Responsibilities	Proposal and assessment of the overall proposed invited and contributed papers to the Particle Accelerator Conference. The candidate belongs to the sub-committee "Radiofrequency".

•Date	Since 2007
• Role	Member of the Review Committee of Eurisol-DS

• Main Responsibilities	Reviewing activity of all papers published in the framework of the European Project "Eurisol-DS". The candidate assesses papers on the driver accelerator and the RNB-accelerator.
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•Date	1999 - 2007
• Funzione	Monitoring Expert of the International Science and Technology Center (ISTC) (Encl.17)
• Main Responsibilities and activities	The ISTC organizes and funds the activities of conversion of the military research of the former USSR. The candidate has executed, on behalf of the European Commission, the monitoring activity of two projects executed by the Khlopin Radium Institute in St. Petersburg (Ru) in collaboration with Institutions in Germany, Sweden, Italy in the field of generation and acceleration of ionized heavy clusters. The monitoring activity consisted in evaluating the fulfillment of the planned scientific and technological goals and its management through yearly workshops promoted by the candidate and in facilitating the applications of their findings in the fields of nanotechnologies and molecular biology.

•Date	In 2001 and in 2003
• Role	Member of the Committee of Independent Experts for the Monitoring of the activities of the European Commission in the field of Controlled Thermonuclear Fusion (Encl.18)
• Main Responsibilities and activities	Twice-yearly evaluation of the European activity, in a group of four experts from various EU states, through dedicated workshops and the editing of an evaluation report for the European Commission.

•Date	2003-2008
• Role	Evaluator of INTAS (EU-Commission Programme for Research Programmes in collaboration between EU and Russian Federation)
• Main responsibilities and activities	The program aims at promoting and preserving the potential of scientific research in the CIS. The evaluation activity is based on the analysis of research programs sent to the candidate electronically.

•Date	2009
• Role	Chairman of the 11th International Conference "Heavy Ion Accelerator Technologies"

INTERNATIONAL COLLABORATIONS	
•Date	2016-2019
• Funzione	Scientific responsibility in the implementation of the Collaboration Protocol between INFN-LNL and the "National Institute for Radiological Science" in Chiba (J)
• Collaboration topic	Studies on Radioactive Nuclear Beam facilities, strengthening of respective assets on cyclotrons, targets, selection, RNB acceleration, through exchange of scientists and ideas.

•Date	2016-2019
• Role	Scientific responsibility in the implementation of the Collaboration Protocol between INFN-LNL and the "Institute for Theoretical and Experimental Physics" in Moscow (Russia)

• Collaboration topic	Heavy ion accelerators and high intensity proton accelerators, particularly in the fields of particle sources and RF accelerating structures.
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•Date	2003
• Role	Visiting Scientist at BESSY II in Berlin (D)
• Collaboration topic	Scientific and technical in-depth evaluation of the development of a superconducting linac for a X-FEL project

•Date	1995-2003
• Role	Scientific responsibility in the implementation of the Collaboration Protocol between INFN and the "Institute for Chemical Research" of the Kyoto University (J)
• Collaboration topics	Exchange of researchers in the fields of linear accelerators and storage rings for heavy ions.

•Date	1998-2001
• Role	Scientific responsibility in the implementation of the Collaboration Protocol between INFN and CERN (Collaboration Contract K 505/SL)
• Collaboration topic	Chemical treatment of niobium superconducting resonators

TEACHING AND LECTURING ACTIVITY
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•Date	2012
•Role	Lecturer at the Euroschool on Exotic Beams, Athens (G).

•Period	Academic years 1997-1998, 1998-1999 e 1999-2000
•Role	Research Professor at the Physics Course of the Faculty of Science (Padua University, Italy), in the course "Laboratory of Physics Technologies" of the last year

•Date	2000
•Role	Lecturer at the CERN Accelerator School on RF Engineering (Darmstadt, maggio 2000), on "Superconducting Cavities"

•Date	1995-2010
•Role	Supervisor of several master theses in Physics, Electronic Engineering, Mechanical Engineering, associated to work done on INFN or international projects (e.g. Eurisol DS)



PERSONAL INFORMATION

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Sex **F** | Date of birth **11/06/1979** | Nationality **Italian**

WORK EXPERIENCE

2010-today CNR-ICMATE researcher

National Research Council of Italy (CNR) - Institute of Condensed Matter chemistry and Technologies for Energy (ICMATE) (Padova, Italy)

Head of *Advanced Coatings Research* at CNR-ICMATE Padova (official nomination 1st September 2011)

Main expertise:

- Deposition of functional coatings via Physical Vapor Deposition (PVD). The writer is expert in DC, RF, Pulsed DC Magnetron Sputtering techniques and High-Power Impulse Magnetron Sputtering Technology (HiPIMS) (inert and reactive atmosphere).
- Design, assembly and operation of UHV equipment and special equipment (PVD field).
- Morphological, compositional and structural characterization of thin films.
- Tribological analyses of coating-substrate systems.

Business or sector: PVD film depositions for harsh environments (i.e. coatings for high temperature applications, anti-oxidation/corrosion films, wear resistant layers, plasma-facing materials, etc.).

2009-2010 Research grant for the project "Research and development of techniques of vacuum plasma etching and atmospheric plasmas for the electropolishing of CUORE"

National Institute of Nuclear Physics of Italy (INFN) – Legnaro National Laboratories (LNL) (Legnaro (PD), Italy)

Main expertise:

- Vacuum plasma etching.
- Atmospheric pressure plasma treatments.

Business or sector: The Cryogenic Underground Observatory for Rare Events (CUORE) is a particle physics facility located at the Laboratori Nazionali del Gran Sasso in central Italy. It was designed primarily as a search for neutrinoless double beta decay in ¹³⁰Te, a process that has never been observed. The writer worked on innovative surface treatments of the experiment copper structure.

EDUCATION AND TRAINING

2009 International Master in "Surface Treatments for Industrial Applications"

grade: excellent

University of Padova (Italy)

Master thesis: "Industrial atmospheric plasma treatments applied to superconducting resonant cavity processing" (Tutor: Prof. V. Palmieri, INFN-LNL)

Subject covered/skills acquired:

- Very good knowledge of surface polishing of metals (mechanical, chemical, electrochemical and thermal treatments).
- Very good knowledge of atmospheric plasmas and their applications.

2008 Ph.D in "Material Science and Engineering"

grade: excellent

University of Padova (Italy)

Ph.D thesis: "6 GHz Cavities: a method to test A15 intermetallic compounds rf properties" (Tutor: Prof. V. Palmieri. The experimental work was carried out at INFN-LNL)

Subject covered/skills acquired:

- Excellent knowledge of DC/RF magnetron sputtering deposition technology (planar and cylindrical cathods, post-magnetron configuration).
- Excellent knowledge of film microstructural and morphological characterization (in particular X-ray diffraction and scanning electron microscopy).
- Excellent knowledge of structure/properties correlations for A15 Mo-Re, V₃Sn and Nb₃Sn.
- Excellent knowledge of RF superconductivity and its applications.
- Excellent knowledge of superconducting resonant cavity quality testing at 4.2 and 1.8 K.
- Excellent knowledge of high temperature thermal diffusion synthesis technologies.
- Excellent knowledge of UHV systems (vacuum chambers, baking technology, vacuum pumps, gauges, mass flow controllers, leak detection, etc.).
- Excellent knowledge of vacuum apparatus design and assembling.
- Excellent knowledge of materials for use in vacuum (also at high temperature).

2004 Laurea Degree in Material Science

grade: 110 cum laude/110 cum laude

University of Padova (Italy)

Degree thesis: "RF Superconductivity applied to accelerating cavities: A15 materials as potential alternative to Niobium"

(Advisor: Prof. V. Palmieri. The experimental work was carried out at INFN-LNL)

Subject covered/skills acquired:

- Good knowledge of DC magnetron sputtering deposition technology (planar and cylindrical cathods).
- Good knowledge of UHV systems (vacuum chambers, baking technology, vacuum pumps, gauges, mass flow controllers, leak detection, etc.).
- Good knowledge of vacuum apparatus design and assembling.
- Good knowledge of materials for use in vacuum (also at high temperature).
- Good knowledge of film microstructural and morphological characterization (in particular X-ray diffraction and scanning electron microscopy).
- Good knowledge of structure/properties correlations for A15 Mo-Re system.
- Good knowledge of RF superconductivity and its applications.

PERSONAL SKILLS

Mother tongue(s) Italian

ENGLISH

UNDERSTANDING	SPEAKING	WRITING
Listening: Advanced	Spoken interaction: Advanced	Advanced
Reading: Advanced	Spoken production: Advanced	

- Job-related skills
- Excellent knowledge of DC/RF magnetron sputtering deposition technology (planar and cylindrical cathods, post-magnetron configuration, reactive) (Laurea Degree, PhD, CNR researcher).
 - Excellent knowledge of High Power Impulse Magnetron Sputtering (HiPIMS) deposition technology (also in reactive mode) (CNR researcher).
 - Excellent knowledge of pulsed DC magnetron sputtering deposition technique (CNR researcher).
 - Excellent knowledge of the simultaneous use of several magnetrons and "closed filed" configurations (HiPIMS-DCMS, HiPIMS-RFMS, HiPIMS-pulsed DC "hybrid configurations") (CNR researcher).
 - Excellent knowledge of structure/properties correlations of coatings for harsh environments (in particular AlTiN-based films and W-Mo plasma facing materials) (CNR researcher).
 - Excellent knowledge of structure/properties correlations of coatings for tribological applications (CNR researcher).
 - Excellent knowledge of film microstructural and morphological characterization (in particular X-ray diffraction and scanning electron microscopy) (Laurea Degree, PhD, CNR researcher).
 - Excellent knowledge of thin coating tribology (CNR researcher).
 - Excellent knowledge of UHV systems (vacuum chambers, baking technology, vacuum pumps, gauges, mass flow controllers, leak detection, etc.) (Laurea Degree, PhD, CNR researcher).
 - Excellent knowledge of vacuum apparati design and assembling (Laurea Degree, PhD, CNR researcher).
 - Excellent knowledge of materials for use in vacuum (also at high temperature and reactive atmosphere) (Laurea Degree, PhD, CNR researcher).
 - Excellent knowledge of RF superconductivity and its applications (Laurea Degree, PhD).
 - Excellent knowledge of superconducting resonant cavity quality testing at 4.2 and 1.8 K (PhD).
 - Excellent knowledge of thermal diffusion synthesis technologies (Laurea Degree, PhD)
 - Excellent knowledge of structure/properties correlations for Al₁₅Mo-Re, V₃Sn and Nb₃Sn (Laurea Degree, PhD).
 - Good knowledge of surface polishing of metals (mechanical, chemical, electrochemical and thermal treatments) (Laurea Degree, PhD, CNR researcher).
 - Good knowledge of atmospheric plasmas and their applications (Master).
- Computer knowledge
- Writing programs: Microsoft Word, LaTeX.
 - Software: Mathematica, Matlab, Microsoft Excel, Microcal Origin.
 - Technical drawing programs: Autocad, Autodesk Inventor.
 - Computer Languages: Fortran, Visual Basic.
 - Courses: Microsoft Project (first level), LabView (data capture and Real Time).

ADDITIONAL INFORMATION

Main Publications

1. S.M. Deambrosis, G. Keppel, V. Rampazzo, C. Roncolato, R.G. Sharma, V. Palmieri, "A15 superconductors: an alternative to niobium for RF cavities", *Physica C, Superconductivity* 441 (2006) 108-113.
2. S.M. Deambrosis, G. Keppel, N. Patron, N. Pretto, V. Rampazzo, A.A. Rossi, R.G. Sharma, S. Stark, F. Stivanello, V. Palmieri (2007), "Progress on Nb₃Sn and V₃Si at LNL", Proceedings de "13th International workshop on RF Superconductivity", Beijing University, Beijing, China, 14th-19th October 2007.
3. N. Patron, M. Baker, S.M. Deambrosis, L. Phillips, S. Stark, V. Palmieri, "Application of plasma cleaning to cavities processing", Proceedings de "13th International workshop on RF Superconductivity", Beijing University, Beijing, China, 14th-19th October 2007.
4. S.M. Deambrosis, V. Rampazzo, A.A. Rossi, V. Rupp, R.G. Sharma, F. Stivanello, S. Stark, V. Palmieri, "A15 superconductors by thermal diffusion in 6 GHz cavities", Proceedings de "14th International workshop on RF Superconductivity", Berlin, Germany, 20th-25th September 2009.
5. A.A. Rossi, S.M. Deambrosis, V. Rampazzo, V. Rupp, R.G. Sharma, F. Stivanello, S. Stark, V. Palmieri, "Nb₃Sn films by multilayer sputtering", Proceedings de "14th International workshop on RF Superconductivity", Berlin, Germany, 20th-25th September 2009.
6. V. Palmieri, S.M. Deambrosis, G. Mondin, V. Rampazzo, D. Rizzetto, V. Rupp, F. Stivanello, "Niobium Electropolishing by Ionic Liquids: What Are the Naked Facts?", Proceedings de "14th International workshop on RF Superconductivity", Berlin, Germany, 20th-25th September 2009.
7. E. Bemporad, M. Sebastiani, S.M. Deambrosis, V. Palmieri, "Integrated approach for high resolution surface characterization: coupling focused ion beam with micro and nano mechanical tests", Proceedings de "15th International Conference on Condensed Matter Nuclear Science", Roma, Italy, 9th-15th October 2009.
8. S.M. Deambrosis, E. Miorin, M. Fabrizio: "Tribological and scratch tests, a useful tool in jewelry and fashion", *Jewelry Technology Forum, JTF 2011, Vicenza (VI) 16th January 2011. ATTI di CONVEGNO.*
9. E. Vassallo, R. Caniello, S.M. Deambrosis, D. Dellasega, F. Ghezzi, L. Laguardia, E. Miorin, M. Passoni, "Removing of Mixed Coatings by Plasma Discharges", *J. Fusion Energ.* 32 (2013) 642-646; doi: 10.1007/s10894-013-9623-z.
10. S.M. Deambrosis, E. Miorin, F. Montagner, V. Zin, M. Sebastiani, D. Dellasega, M. Passoni, E. Bemporad, M. Fabrizio, "PVD refractory metal based coatings for tribological applications", Proceedings de "World Tribology Congress, WTC2013", 9th-13th September 2013, Torino, Italy.
11. S.M. Deambrosis, E. Miorin, F. Montagner, V. Zin, M. Fabrizio, M. Sebastiani, F. Massimi, E. Bemporad, "Structural, morphological and mechanical characterization of Mo sputtered coatings", *Surface & Coatings Technology* 266 (2015) 14-21.
12. E. Vassallo, G. Angella, R. Caniello, S.M. Deambrosis, F. Inzoli, E. Miorin, M. Pedroni, "Effects of Nitrogen Concentration on Microstructure of Tungsten Coatings Synthesized by Plasma Sputtering Method", *Journal of Fusion Energy*, 05/2015; doi: 10.1007/s10894-015-9945-0.
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15. C. Badini, S.M. Deambrosis, E. Padovano, M. Fabrizio, O. Ostrovskaya, E. Miorin, G. D'Amico, F. Montagner, S. Blamino, V. Zin, "Thermal Shock and Oxidation Behavior of HIPIMS TiAlN Coatings Grown on Ti-48Al-2Cr-2Nb Intermetallic Alloy", *Materials* 9 (12) (2016) 961; doi: 10.3390/ma9120961.
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Main Presentations

1. S.M. Deambrosis, G. Keppel, V. Rampazzo, C. Roncolato, R.G. Sharma, V. Palmieri, "A15 superconductors: an alternative to niobium for RF cavities", 12th International workshop on RF Superconductivity, Cornell University, Ithaca, USA, July 10th-15th, 2005.
2. S.M. Deambrosis, G. Keppel, N. Patron, N. Preto, V. Rampazzo, A.A. Rossi, R.G. Sharma, S. Stark, F. Stivanello, V. Palmieri (2007), "Progress on Nb₃Sn and V₃Si at LNL", 13th International workshop on RF Superconductivity, Beijing University, Beijing, China, October 14th-19th, 2007.
3. S.M. Deambrosis, V. Rampazzo, A.A. Rossi, V. Rupp, R.G. Sharma, F. Stivanello, S. Stark, V. Palmieri, "Nb₃Sn and V₃Si for superconducting cavity application", International Workshop on thin films applied to superconducting RF and new ideas for pushing the limits of RF superconductivity, Jefferson Laboratories, Newport News, Virginia, USA July 22nd-25th, 2008.
4. S.M. Deambrosis, V. Rampazzo, A.A. Rossi, V. Rupp, R.G. Sharma, F. Stivanello, S. Stark, V. Palmieri, "A15 superconductors by thermal diffusion in 6 GHz cavities", 14th International workshop on RF Superconductivity, Berlin, Germany, September 22nd-25th, 2009.
5. S.M. Deambrosis, E. Miorin, M. Fabrizio: "Tribological and scratch tests, a useful tool in jewelry and fashion", Jewelry Technology Forum, JTF 2011, Vicenza (VI), Italy, January 16th, 2011.
6. S.M. Deambrosis, F. Agresti, S. Battiston, E. Bemporad, M. Fabrizio, E. Miorin, F. Montagner, M. Sebastiani: "Refractory metal films by DC magnetron sputtering for Energy Applications", XX CONGRESSO NAZIONALE AIV, "Materials, Interfaces, Processes: New Challenges for Future Applications", Padova, Italy, May 17th-19th, 2011.
7. S.M. Deambrosis, E. Miorin, M. Fabrizio, M. Sebastiani, E. Bemporad: "Structural, Morphological and Mechanical Characterization of Mo Sputtered Coatings", 40th ICMCTF International Conference on Metallurgical Coatings and Thin Films, April 29th-May 3rd, 2013 San Diego, CA, USA.
8. F. Montagner, S. M. Deambrosis, E. Miorin, V. Zin, M. Fabrizio; "HiPIMS Deposition System: Importance of the Equipment Design" XXI CONGRESSO AIV, Materials, Interfaces, Processes: New Challenges for Future Applications, Catania, Italy, May 15th-17th, 2013.
9. S.M. Deambrosis, E. Miorin, F. Montagner, V. Zin, M. Sebastiani, D. Dellasega, M. Passoni, E. Bemporad, M. Fabrizio, "PVD refractory metal based coatings for tribological applications", World Tribology Congress WTC2013, Torino, Italy, September 9th-13th, 2013.
10. S.M. Deambrosis, E. Miorin, F. Montagner, V. Zin, M. Fabrizio, "Power and pressure effect on HiPIMS tungsten coatings", 16th International Conference on Thin Films (ICTF16), Dubrovnik, Croatia, October, 13th-16th, 2014.
11. S. M. Deambrosis, E. Miorin, F. Montagner, V. Zin, S. Battiston, M. Fabrizio, "Thin Films for Extreme Conditions by HiPIMS", XXII Congresso AIV, Genova, Italy, May, 20th-22nd 2015.
12. S.M. Deambrosis, E. Miorin, F. Montagner, V. Zin, M. Fabrizio, M. Sebastiani, E. Bemporad, "HiPIMS AlTiN Coatings", 6th International Conference on Fundamentals and Industrial Applications of HIPIMS – HiPIMS2015, Braunschweig, Germany, June, 10th-11th, 2015.
13. S. M. Deambrosis, M. Fabrizio, E. Miorin, F. Montagner, V. Zin, "HiPIMS Nitride Coatings for Thermal and Tribological Applications", 5th Workshop AIT – Tribologia e Industria, Salerno, Italy, April 21st-22nd, 2016.
14. S. M. Deambrosis, C. Badini, M. Fabrizio, E. Miorin, F. Montagner, E. Padovano, E. Ricci, M. Sebastiani, E. Vassallo, V. Zin, "HiPIMS nitride coatings for harsh environments", The 30th International Conference on Surface Modification Technologies (SMT30), Milano, Italy June 29th-July 1st, 2016.
15. S. M. Deambrosis, E. Miorin, F. Montagner, V. Zin, M. Fabrizio, E. Padovano, C. Badini, M. Sebastiani, E. Bemporad, "Thermal resistance of TiAlN coatings deposited via HiPIMS on a γ -TiAl alloy", 6th EASN International Conference on Innovation In European Aeronautics Research, Porto, Portugal, October, 18th-21st 2016.
16. V. Zin, S. M. Deambrosis, M. Fabrizio, E. Miorin, F. Montagner, E. Ricci, C. Badini, M. Sebastiani, E. Vassallo "Nitride films produced via HiPIMS for extreme conditions", Materials.it, Catania, Italy December, 12th-16th, 2016.

Main Posters

1. S.M. Deambrosis, E. Miorin, F. Montagner, S. Battiston, M. Fabrizio, S. Daolio: "W films by DC magnetron sputtering", Magnetron, Ion processing & Arc Technologies European Conference MIATEC 2010, Metz, France, June, 16th-18th, 2010.
2. S.M. Deambrosis, E. Miorin, F. Montagner, S. Battiston, F. Agresti, M. Fabrizio, S. Daolio: "W Films by DC Magnetron Sputtering", Meeting on Syntheses and Methodologies in Inorganic Chemistry SAMIC International 2010 – From Molecules to Nanosystems, Bressanone (BZ), Italy, November 28th-December 1st, 2010. Conference Proceedings P19.
3. B. Rais, A. Canton, P. Innocente, E. Miorin, S. M. Deambrosis; "Development and Testing of Tungsten Coatings for the RFX-mod Device Wall", 14th International Conference on Plasma-Facing Materials and Components for Fusion Applications, Jülich, Germany, May 13th-17th, 2013.
4. R. Caniello, S. Deambrosis, D. Dellasega, E. Miorin, M. Passoni, M. H. J.'t Hoen, E. Vassallo, P. A. Zeijlmans van Emmichoven, "Deuterium retention and erosion properties of nanostructured W coatings", XXI Congresso AIV, Materials, Interfaces, Processes: New Challenges for Future Applications, Catania, Italy, May 15th-17th, 2013.
5. S.M. Deambrosis, E. Miorin, F. Agresti, F. Montagner, V. Zin, M. Fabrizio; "HIPIMS vs DCMS technology to produce tungsten coatings for fusion applications", 4th International Conference on Fundamentals and Applications of HIPIMS, Braunschweig, Germany, June 10th-13th, 2013.
6. A. Canton, S. M. Deambrosis, P. Innocente, S. Lionetti, E. Miorin, M. Pavei, M.E. Puiatti, B. Rais, A. Rizzolo, C. Ruset, S. Spagnolo, M. Spolaore, D. Terranova, N. Visonà, B. Zaniol, F. Degli Agostini, F. Rossetto, A. Tiso, "Characterisation of Tungsten coating on Graphite samples", Joint 19th ISHW and 16th RFP workshop, Padova, Italy, September 16th-20th, 2013.
7. F. Agresti, S. Barison, P. Bassani, C.A. Biffi, P. Capaldi, S.M. Deambrosis, C. Fanciulli, A. Gondolini, M. Mazzocchi, V. Medri, E. Mercadelli, E. Miorin, F. Montagner, E. Papa, A. Sanson, A. Tuissi, V. Zin, M. Fabrizio, "New Materials for an Internal Combustion Co-Generator Prototype", LET'S 2014, Bologna, Italy, September 29th-October 1st, 2014.
8. V. Zin, S. Barison, E. Miorin, S. M. Deambrosis, L. Colla, M. Fabrizio, "Nanolubricants: a nanotechnology application described from a tribological point of view", First Joint CSIC-CNR workshop "Nanotechnology and Energy, Madrid, Spain, November 11th-12th, 2014.
9. A. Canton, S. M. Deambrosis, P. Innocente, E. Miorin, E. Palmieri, M.E. Puiatti, H. Skliarova, R. Cavazzana, B. Zaniol, C. Ruset, B. Rais, N. Visonà and I. Tozzato, "Qualification of Tungsten Coating on Carbon Components "for the Wall of the RFX-mod Device", PFMC15 - 15th International Conference on Plasma-Facing Materials and Components for Fusion Applications, Aix-en-Provence, France, May 18th-22nd, 2015.
10. S. M. Deambrosis, V. Zin, E. Miorin, F. Montagner, S. Battiston, M. Fabrizio, "Hard protective nitride coatings for extreme conditions by HIPIMS", Ceramics for Energy, CEN 2015, Faenza, Italy, May, 14th-15th, 2015.
11. M. De Muri, M. Pavei, F. Rossetto, D. Marcuzzi, E. Miorin, S.M. Deambrosis, "Design optimization of RF lines in vacuum environment for the MITICA experiment", 6th International Conference on Ion Sources, ICIS2015, New York City, USA, August 23rd-28th, 2015.
12. E. Ricci, M. Canetti, G. Ceccone, S. M. Deambrosis, M. Fabrizio, E. Miorin, F. Montagner, M. Pedroni, V. Spampinato, E. Vassallo, V. Zin, "Aluminum-based PVD protective coatings as corrosion barrier in nuclear plants" 15th IUPAC conference on high temperature material chemistry (HTMC15), Orleans, France, March 29th-April 1st, 2016.
13. A. Canton, P. Innocente, S. M Deambrosis, L. Grandò, E. Miorin, M. Siragusa, N. Visonà, "Characterization of first wall materials in RFX-mod", 43th conference on plasma physics, Leuven, Belgium, July, 4th-8th 2016.
14. E. Rebollo, C. Mortalò, S. Escolastico, S. M. Deambrosis, K. Haas-Santo, R. Dittmeyer, M. Fabrizio, "Chemical stability study on BaCe_{0.65}Zr_{0.20}Y_{0.15}O_{3-δ}-Ce_{0.25}Gd_{0.15}O_{2.5} ceramic composites for H₂ separation", Materials.it, Catania, Italy, December, 12th-16th, 2016.

Teaching, Reviewing, Projects

- 2004-2005: Lecturer of "Superconductivity of transition metals" (University of Padova, Material Science degree course).
- 2005-today: assistant supervisor (University of Padova).
- 2010-today: reviewer for the Office of Nuclear Physics (NP) within the Department of Energy Office of Science.
- 2010-2013: Project "Materiali e tecnologie abilitanti per la ricerca di sistema elettrico"; CNR- MiSE 2nd Agreement "Ricerca per il sistema elettrico nazionale". The research activity concerns the synthesis and characterization coatings/superalloys systems.
- 2010-today: EERA (European Energy Research Alliance) Joint Program "Nuclear Materials".
- 2011-2013: EFDA Work Programme tasks. In particular a) Permeability measurements of W and W-alloys coatings produced by PVD techniques (2011); b) Study of the erosion of codeposited materials (a-CW/Mg:H) by means of the interaction with nitrogen, oxygen and/or hydrogen radio frequency plasmas (also mixture with noble gases) (2011); c) Retention of Tungsten coatings exposed to high-flux deuterium plasmas (2012-2013).
- 2012-2016: Progetto Bandiera RITMARE (La Ricerca Italiana per il Mare). The task force is responsible for the tribological characterization of materials coated with functional coatings operating in the marine environment.
- 2013-2016: European project "Materials' Innovations for a Safe and Sustainable nuclear in Europe MATISSE". The research activity concerns the production of high-performance coatings suitable for nuclear fission environment by HiPIMS and their deep characterization.
- 2013-today: EERA Joint Programme "Advanced Materials and Processes for Energy Applications (AMPEA)".

Main Collaborations

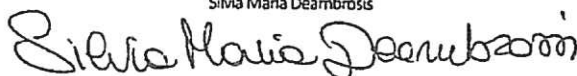
- Lawrence Berkeley National Laboratory (USA)
- Max-Planck-Institut für Plasmaphysik di Garching (Germany)
- Dutch Institute for Fundamental Energy Research – DIFFER, Nieuwegein, Netherlands
- Centrum vyzkumu Rez s.r.o., Czech Republic
- Karlsruhe Institute of Technology. Institute for Pulsed Power and Microwave Technology (KIT-IHM), Germany
- Politecnico di Torino, Italy
- Politecnico di Milano, Italy
- UniRoma3, Italy
- CNR-IFP Milano, Italy
- CNR-IGI e Consorzio RFX – Associazione ENEA Euratom, Italy
- INFN-LNL

La sottoscritta, consapevole della responsabilità penale prevista dall'art. 76 del D.P.R. 445/2000, per le ipotesi di falsità in atti e dichiarazioni mendaci ivi indicate, dichiara che tutto ciò che è affermato nel presente curriculum vitae et studiorum è autentico.

La sottoscritta esprime il proprio consenso al trattamento dei dati personali forniti, nel rispetto del Decreto Legislativo N°196/2003, per gli adempimenti connessi alla presente procedura.

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<i>Education:</i>	1974 Doctor Degree in Physics, Summa Cum Laude, ,University of Napoli, Italy 1976 Specialization School in Physics, University of Salerno, Italy.
<i>Academic career:</i>	1977/81 Assistant Professor (Prof. Incaricato), University of Salerno. 1981/82 Visiting Researcher, Argonne National Laboratory, U.S.. 1982/86 Associate Professor, University of Salerno. 1987/92 Full Professor (Structure of the Matter) ,University of Salerno. From 1992 Full Professor (Physics), University of Napoli “Federico II”.
<i>Professional experience :</i>	1987/1991 Department Director, Physics Department, University of Salerno. 1993/2002 Director of the Engineering Section of the Physical Science Department of the University of Napoli “Federico II”. 1993/2001 Director Napoli Section of INFM and Member of the INFM Directive Council. 1996/2001 Member of the Scientific Council of three CNR Institutes (CEFSA-Trento, MASPEC-Parma, CSFBT-Genova) 1998/2001 Member of the INFM Executive board. 2001/2003 Member of the Advisory Board of ESAS (European Society for Applied Superconductivity) 2002/2005 President of the Regional Center “Innovative Technologies” 2003/2004 Member of the Administrative Board of “Columbus Superconductors” (Spin off INFM) 2002/2007 Coordinator of the PhD School “Innovative Technologies” of the University of Napoli “Federico II”. 2002/2008 Director, Research and Development CNR-INFM Center “Coherentia” 2008/2009 Member of the Executive Board, CNR-INFM 2010/2012 Director of the CNR Institute SPIN in Genova From 2007 Member (for CNR) of the Administrative Board of CRdC Tecnologie From 2012 Member of the International Advisory Board of the CNR Institute SPIN in Genova Member of various Journals Editorial Boards and referee of the main international Journals in Solid State Physics, and member of the Scientific Committees of many International Conferences
<i>Research Area of Expertise:</i>	Innovative materials and their applications. Thin film deposition and micro-devices realization. AFM and tunnel microscopy techniques . Electronic devices and sensors based on oxides and organic materials,
<i>Publications</i>	About 170 publications on ISI classified International Journals, 2 International Patents , H index : 21