CURRICULUM VITAE

Personal information

Name, Surname:	**Marian, ENACHESCU**		
Date of birth:	01.08.1958	Sex:	M
Nationality:	Romanian		
Researcher unique identifier(s) (ORCID, Researcher ID etc.):	https://orcid.org/0000-0002-8451-8231 https://scholar.google.com/citations?user=626BwRMAAAAJ&hl=ro&oi=ao https://www.scopus.com/authid/detail.uri?authorId=55443651300 https://www.researchgate.net/profile/Marius-Enachescu UEFISCDI ID (UEF-ID): U-1700-039S-482		
URL for personal website (if case):			

Education

Year	Faculty/department - University/institution - Country
1994 (dissertation defended)	Ph.D. in Physiscs (Dr.rer.nat.), Technical University of Munich, München, Germany Thesis: "*Scanning Tunneling Microscopy Studies of Light-Emitting Porous Silicon and Construction of a Special-Purpose Tunneling Microscope* ", Advisers: Prof. Dr. R. J. Behm and Prof. Dr. Frederick Koch. Designed and built the first UHV-STM system for Technical University of Munich.
1978-1983	Bachelor and M.Sc. in Physics, Faculty of Physics, University of Bucharest
1994	Postdoc Research Scientist, Technical University of Munich, München, Germany
1995-1996	Postdoctoral Research Associate, Laboratory of Surface Science and Technology, Sawyer Research Center, University of Maine, Orono, USA
1997-1999	Postdoc Fellow, Materials Sciences Division, Lawrence Berkeley National Laboratory, University of California – Berkeley; USA

Positions - current and previous

(*Academic sector/research institutes/industrial sector/public sector/other)*

Year	Job title – Employer - Country
2011 to present	General Director of Center for Surface Science and NanoTechnology, University POLITEHNICA of Bucharest, Romania
2009-2010	Deputy Secretary of State and Secretary of State, Ministry of Education, Research, Youth and Sport; National Authority for Scientific Research, Bucharest, ROMANIA
2009 to present	Professor, University POLITEHNICA of Bucharest, Romania
2000-2009	Visiting Scientist/Professor, Materials Sciences Division, Lawrence Berkeley National Laboratory, University of California – Berkeley; USA
1997-1999	Postdoc Fellow, Materials Sciences Division, Lawrence Berkeley National Laboratory, University of California – Berkeley; USA
1995-1996	Postdoctoral Research Associate, Laboratory of Surface Science and Technology, Sawyer Research Center, University of Maine, Orono, USA
1994	Postdoc Research Scientist, Technical University of Munich, München, Germany

1991-1994	PhD Research Fellow, Technical University of Munich, München, Germany
1987-1990	Assistant Professor, Faculty of Physics, University of Bucharest, Romania
1983-1987	Research Scientist, Institute of Physics and Technology of Materials, MAGURELE, Ilfov, Romania

Career breaks (if case)

Year	Reason
yyyy-yyyy	Not the case

Project management experience

(*Academic sector/research institutes/industrial sector/public sector/other. Please list the most relevant.)*

Year	Project title - Role – Funder – Budget – link to project webpage
2020-2023	„Building the fully European supplY chain on RFSOI, enabling New RF Domains for sensing, Communication, 5G and beyond”-BEYOND5, MySMIS 136877, Contract No. 12/1.1.3H/31.07.2020, Project Director, POC 1.1.3H, 6 000 000RON; https://cssnt-upb.ro/pro/beyound5_en/?lang=en
2020-2023	”IC Technology for the 2nm Node”-IT2, MySMIS 136697, Contract No. 11/1.1.3H/06.07.2020, Project Director, POC 1.1.3H, 6 000 000RON; https://cssnt-upb.ro/pro/it2_en/?lang=en
2020-2023	”Pilot Integration 3nm Semiconductor technology”-PIn3S, MySMIS 135127, Contract No. 10/1.1.3H/03.04.2020, Project Director, POC 1.1.3H, 6 000 000RON; https://cssnt-upb.ro/pro/pin3s_en/?lang=en
2020-2022	”Opportunity to Carry European Autonomous driviNg further with FDSOI technology up to 12nm node”-OCEAN12, MySMIS 129948, Contract No. 9/1.1.3H/20.01.2020; Project Director, POC 1.1.3H, 6 000 000RON; https://cssnt-upb.ro/pro/ocean12en/?lang=en
2020-2023	„Metrology Advances for Digitized ECS industry 4.0”-MADEin4, MySMIS 128826, Contract No. 9/1.1.3H/20.01.2020, Project Director, POC 1.1.3H, 6 000 000RON; https://cssnt-upb.ro/pro/madein4_en/?lang=en
2020-2020	“Heavy ion irradiation of polymer nanocomposite thin films and fiber optic samples for development of SERS platforms for advanced sensing” subject code 04-5-1131-2017/2021, position 82 of IUCN Order No. 2697/20.05.2020, Project Director, DUBNA, 18533 RON
2019-2023	”first and euRopEAn siC eigTh Inches pilOt liNe”-REACTION, MySMIS 121169, Contract No. 4/1.1.3H/24.04.2019, Project Director, POC 1.1.3H, 6 000 000RON; https://cssnt-upb.ro/pro/reaction_en/about_reaction/?lang=en
2018-2023	”300mm Pilot Line for Smart Power and Power Discretes”-R3PowerUP, MySMIS 115833, Contract No. 1/1.1.3/31.01.2018, Project Director, POC 1.1.3H, 5 290 000 RON; https://cssnt-upb.ro/pro/r3-powerup_en/?lang=en
2018-2020	PN-III-P1-1.2-PCCDI-2017-0407, Smart materials for medical applications –INTELMAT, subproject 5- Developing of innovative technologies for the synthesis of some 1D nano-architectures (nanowires) with controlled morphology, with applications in producing of non-enzimatic electrochemical biosensors (Contr.No. 39PCCDI/2018). SubProject 5 Coordinator,UEFISCDI, 5 018 125 RON;

2018-2018	"The study of heavy ion irradiation of single wall carbon nanotubes (SWCNTs): conductive polymer nanocomposite thin films for third generation solar cell applications", subject code 04-5-1131-2017/2021, position 122 of IUCN Order No. 322/21.05.2018, Project Director, DUBNA, 15400 RON.
2018-2018	"Heavy ion irradiation of polymer nanocomposite thin films and fiber optic samples for development of SERS platforms for advanced sensing", subject code 04-5-1131-2017/2021, position 123 from IUCN Order No. 322/21.05.2018, Project Director, DUBNA, 15400 RON.
2016-2018	M-ERANET project, Fabrication and functionalization of nanostructured metallic foams for energy storage applications-NANOFOAM (Contr.No.37/2016), Partner Team Coordinator,, UEFISCDI, 1 125 000 RON; https://cssnt-upb.ro/pro/nanofoams_en/?lang=en
2013-2015	PN II – Bilateral Moldova, A new generation of organic solar cells based on carbon nanotubes-OPVCNT, Contract No. 686/22.04.2013, Project Coordinator, UEFISCDI, 59760 RON; https://cssnt-upb.ro/pro/opvcnt_en/?lang=en
2013-2015	"LAB FAB for smart sensors and actuators MEMS - Lab4MEMS", Contract No. ENIAC03/2013, Project Director, ENIAC, 2435295RON; https://cssnt-upb.ro/pro/lab4mems_en/?lang=en
2011-2014	EuroNanoMed, ERA NET project, "Nanoparticles designed to target chemokine-related inflammatory processes in vascular diseases and cancer metastasis and implementation of a biosensor to diagnose these disorders"-NANODIATER Contract No.01/06.06.2011), Partner Team Coordinator, UEFISCDI, 860000 RON; https://cssnt-upb.ro/pro/nanodiater/?lang=en
2010-2013	POSCCE-O 2.1.2 – „SPFM technologys solutions in ionic reactions in soil and building waste nanocomposites based on carbon nanotubes for energy and environment applications" SPFM-LA, Contract No. 183/18.06.2010, Project Director, ANCS, 6000000 RON; https://cssnt-upb.ro/pro/spfm-la/?lang=en

Other relevant professional experiences

(e.g. institutional responsibilities, organisation of scientific meetings, membership in academic societies, review boards, advisory boards, committees and major research or innovation collaborations, other commissions of trust in public or private sector)

Year	Description - Role
2009-2017	VicePresident of American-Romanian Academy of Arts and Sciences, USA, 2009-2017
2016-2020	MC for Romania under COST CA15107 - Multi-Functional Nano-Carbon Composite Materials Network (MultiComp)
2019	Local Organizer for COST Action 15107 Training School on Nanomaterials synthesis and advanced characterization techniques at nanometer and atomic scale
2018	Local Organizer for Bucharest Autumn Meeting under COST Action 15107 (MultiComp)
2019	Award in appreciation of the contribution to the development of the Romanian physics science" , LEGAL POINT 2019
2013	Award for Forging the Limits and bringing the ELI project to the country ", MEDIAFAX, 2013.
2011	Personality of the Year 2011 for a European Romania, EUROLINK, 2011
2010	Award for Excellence in Physiscs/Chemistry, American Romanian Academy 2010, USA

2009	”Doctor Honoris Causa”, University of Pitesti, Romania, January 2009
2009	Award of American Romanian Academy, 2009, USA.
1996	Award of Romanian Academy, Section Physics, 1996, Romania
1983	Award of Ministry of Education, 1983, Romania

C.2 Track record of the last 10 years

A list of the ten most important scientific outputs (publications, patents, technologies etc).

1. Brandao, ATSC; State, S; Costa, R; Potorac, P; Vazquez, JA; Valcarcel, J; Silva, AF; Anicai, L; **Enachescu, M**; Pereira, CM – „Renewable Carbon Materials as Electrodes for High-Performance Supercapacitors: From Marine Biowaste to High Specific Surface Area Porous Biocarbons”, ACS OMEGA, 8(21), pag. 18782-18798, 2023, WOS: 001014134900001
2. Li, G; Iakunkov, A; Boulanger, N; Lazar, OA; **Enachescu, M**; Grimm, A; Talyzin, AV – „Activated carbons with extremely high surface area produced from cones, bark and wood using the same procedure”, RSC ADVANCES, 13(21), pag. 14543-14553, 2023, WOS: 000986219500001
3. Lazar, OA; Nikolov, AS; Moise, CC; Mihai, GV; Prodana, M**; Enachescu, M** – „KrF excimer laser for Pt-NPs synthesis by PLAL in isopropanol solution and their use in a SERS application”, JOURNAL OF MATERIALS RESEARCH AND TECHNOLOGY-JMR&T, 24, pag. 7135-7152, 2023, WOS: 001043357300001
4. Lazar, OA; Nikolov, AS; Moise, CC; Rosoiu, S; Prodana, M; **Enachescu, M** – „Fabrication of Pt nanoparticles by nanosecond pulsed laser ablation in aqueous solution of ethanol using KrF excimer laser”, APPLIED SURFACE SCIENCE, 609, 2022, WOS: 000882160100002l
5. Brandao, ATSC; Rosoiu, S; Costa, R; Lazar, OA; Silva, AF; Anicai, L; Pereira, CM; **Enachescu, M** – „Characterization and electrochemical studies of MWCNTs decorated with Ag nanoparticles through pulse reversed current electrodeposition using a deep eutectic solvent for energy storage applications”, JOURNAL OF MATERIALS RESEARCH AND TECHNOLOGY-JMR&T, 15, pag. 342-359, 2021, WOS: 000734204600005;
6. Moise, CC; Enache, LB; Anastasoaie, V; Lazar, OA; Mihai, GV; Rosoiu, SP; Bercu, M; **Enachescu, M** – „On the growth of copper oxide nanowires by thermal oxidation near the threshold temperature at atmospheric pressure”, JOURNAL OF ALLOYS AND COMPOUNDS, 886, 2021, WOS: 000697777600005
7. Iakunkov, A; Skrypnychuk, V; Nordenstrom, A; Shilayeva, EA; Korobov, M; Prodana, M; **Enachescu, M**; Larsson, SH; Talyzin, AV – „Activated graphene as a material for supercapacitor electrodes: effects of surface area, pore size distribution and hydrophilicity”, PHYSICAL CHEMISTRY CHEMICAL PHYSICS, 21(32), pag. 17901-17912, 2019, WOS: 000481777100040;
8. Inaba, S; Arai, R; Mihai, G; Lazar, O; Moise, C; **Enachescu, M**; Takeoka, Y; Vohra, V – „Eco-Friendly Push-Coated Polymer Solar Cells with No Active Material Wastes Yield Power Conversion Efficiencies over 5.5%”, ACS APPLIED MATERIALS & INTERFACES, 11(11), pag. 10785-10793, 2019, WOS: 000462260000038;
9. Monaico, E; Moise, C; Mihai, G; Ursaki, VV; Leistner, K; Tiginyanu, IM; **Enachescu, M**; Nielsch, K – „Towards Uniform Electrochemical Porosification of Bulk HVPE-Grown GaN”, JOURNAL OF THE ELECTROCHEMICAL SOCIETY, 166(5), pag. H3159-H3166, 2019, WOS: 000456793500001;
10. Sun, JH; Klechikov, A; Moise, C; Prodana, M; **Enachescu, M**; Talyzin, AV – „A Molecular Pillar Approach To Grow Vertical Covalent Organic Framework Nanosheets on Graphene: Hybrid Materials for Energy Storage”, ANGEWANDTE CHEMIE-INTERNATIONAL EDITION, 57(4), pag. 1034-1038, 2018, WOS: 000428208700030;

C.3 Narrative CV

A narrative summarizing which work has had the greatest importance and impact.

Prof. Dr.rer.nat. Marius Enachescu is an internationally recognized expert, being among the world pioneers in designing and building STM-AFM systems. He conducted research in world leading laboratories (Technocal University of Munich (TUM), Germany ~5years; Lawrence Berkeley National Laboratory, University of California Berkeley; USA ~15 years). Currently he is Professor at the POLITEHNICA Bucharest and the Founder and Head of CSSNT. He is the author/co-author of 12 International patents: USA-5, Taiwan-2, Europe-4, China-1; 11 books/chapters, all in international publishing houses; >100 articles published in ISI journals; H-index 25(WOS); presented over 25 invited talks to international conferences and universities; author/co-author of ~250 conferences/congresses presentations; led >38 international projects in USA and EU. He was awarded with multiple gold medals, national and international prizes for his scientific achievements of international importance and impact, some of which are briefly presented below.

1. Construction of the first Scanning Tunneling Microscope (STM) at the Technical University, Munich, Germany (1991-1993). Following his passion for, ”what does an atom look like?”, the author constantly sought to find a method by which he could measure and create an image of the atom. In this scope, he was encouraged by G. Binnig and H. Rohrer suggestion of atom measurement in real space. The STM was at that time (1990s) the prerogative of 2-3 laboratories in the world. The major universities and research labs of the world were in a race against time to create their own ”in-house built” STM units. At the end of 1990, TUM, Germany, decided to create the first STM, and this moment coincided with the start of the author's DAAD scholarship researcher internship there. He started the construction from scratch of this very complex STM system in 1991 and completed it in 1993, by successfully visualizing the atoms on a graphite surface. His achievements obtained with this STM system, also include: (1) visualization at the atomic scale of various surfaces and studying the specific processes; (2) interface investigations between a semiconductor and a high-temperature superconductor (funding by Siemens AG); (3) demonstration of light emission from luminescent porous silicon samples by STM tip excitation; (4) nanoscale realization of a switching electronic nano-device; (5) design and lab manufacturing of conductive nano-wires by STM (funding by Siemens AG).

2. Experimental demonstration of real-space quantum confinement in luminescent porous silicon nanocrystals (1992-1994). The idea of using Si-porous arose in 1991 from the need to reduce the costs of optically active semiconductors. Porous silicon irradiated with a laser (530 nm) re-emits in red, an incredible fact at that time. Using porous Si fabricated at different chemical etching parameters, the author prepared samples with various size distributions of silicon nanocrystallites embedded in the porous network, measured directly by STM, of: 10 nm, 5 nm, and 2-3 nm in diameter, respectively. During green laser irradiation he observed that: (1) 10 nm nanocrystallites do not emit (in red); (2) the 5 nm ones start to emit, weakly; (3) the 2-3 nm ones emit strongly (in red). This has shown that if the actual size of the nanocrystallites is comparable to the Bohr radius of the exciton, 2-3 nm, then light emission occurs, thus demonstrating in real space, quantum confinement in luminescent porous silicon.

3. ”Writing” stable nanometric structures on crystalline silicon and luminescent porous silicon surfaces (1993-1996). Using an STM, he demonstrated the possibility of writing stable structures of 20-50 nm width on ultra-thin luminescent porous silicon samples, i.e., thicknesses of about 20 nm as well as on crystalline silicon. The STM was operated under ultra-high vacuum conditions and at room temperature. Based on these experimental demonstrations, he showed that very uniform nano-structures can be produced, and in addition, that very narrow structures can be arranged, ”written”, in any desired shape of the structure by controlling the repositioning of the tunneling tip towards predetermined positions/locations.

4. Experimental identification of a new law of friction, at the atomic and nm scale (1998-1999). The author contributed directly to the elucidation and identification of the friction laws at the atomic and nm scale by thinking, designing and implementing a unique experiment: the nano-tribological study of the system formed at the interface between a diamond crystal surface oriented (111), the surface terminated with hydrogen atoms and a nm size WC asperity. It has been experimentally demonstrated that at the atomic and nm level there is a new/another law of friction, namely a law which says that the force of friction is directly proportional to the area of contact, and thus it has been shown that the classical and empirical law of friction

loses its validity at this scale. This demonstration was also the first experimental observation in ultra-high vacuum of the dependence of the pressure force as a function of the contact area between two bodies, as described by the Derjaguin–Müller–Toporov model in continuum mechanics.

5. Detection, localization and identification of electronic defects present in flat panel TV monitors (Flat Panel Displays), printed circuit boards (Printed Circuit Boards) and semiconductor devices (2004-2009). The author proposed and implemented a new defect detection method that consists in collecting the emission spectroscopic signal from the glass on which all the electronic components of the flat screen are deposited, when these components are not activated/stimulated. His main achievements include: (1) implementing a non-contact method of detecting defects in a clean room; (2) implementation of a method that proved a defect capture rate of over 98%, compared to the one of the main competitor's on the market of ~ 60%; (3) implementation of a method that can identify defects in a network of multi-million active electronic components; (4) developing the system/apparatus to implement this method; (5) the development and implementation of algorithms for defects detection; (6) the development and implementation of algorithms for defects localization and identification; (7) the development and implementation of algorithms for automatic detection of defects; (8) the method allows the inspection of several classes/types of technologies for flat screens, namely those based on LCD, on FED (Field Emission Display), OLED (Organic Light-Emitting Diodes), those with plasma, etc., as well as for printed circuit boards and semiconductor devices.

6. Bringing the Extreme Light Infrastructure Nuclear Physics (ELI-NP) project to Romania (2009). The pan-European research structure "Extreme Light Infrastructure" - ELI is the brainchild of a group of scientists led by Nobel Laureate Prof. G. Mourou. After the "preparatory phase" of ELI, Romania left the race, through the ESFRI decision of June 16, 2009 in Frankfurt. As a physicist and vice-president of the National Authority for Scientific Research, Prof. Enachescu negotiated in the ELI Scientific Committee made up of 13 countries, the cancellation of the ESFRI decision from Frankfurt and the eventual presence of an ELI Pillar in Romania. Thus, Prof. M. Enachescu managed to modify the ELI project, so that three ELI infrastructures/pillars are created, the one in Romania dedicated to applications in nuclear physics. Approval in the ELI Scientific Committee was obtained on October 1, 2009 in Prague, and the final approval was given at the Competitiveness Council on December 3, 2009, in Brussels, with Prof. Enachescu representing Romania at both events. The implementation of the ELI-NP project in Romania was handled by other people.

7. Establishment of the Center for Surface Science and Nanotechnology within POLITEHNICA Bucharest (CSSNT-POLITEHNICA Bucharest) (2011-present). After returning to Romania in 2009, the focus of Prof. Enachescu was on the impact of science and technology on real life. Thus, he identified the most suitable projects in Europe with direct applicability in life: the JU type of projects, that have among their partners the largest electronics manufacturers in EU and research units in the field. To be able to participate in such EU projects, Prof. Enachescu founded in 2011 at the POLITEHNICA Bucharest, the Center for Surface Science and Nanotechnology. CSSNT has become the top center among the over 50 research centers in POLITEHNICA BUCURESTI, based on the number of international projects and the funding attracted. CSSNT currently has 22 laboratories, 4 of which are unique in EU. In the H2020 ENIAC-JU competition, CSSNT won 3 projects, in the H2020 ECSEL-JU competition CSSNT won 7 projects and in the HE KDT competition 6 projects. All these 16 projects in micro- and nano-electronics have Prof. M. Enachescu as project director**.** The involvement in the most advanced micro- and nano-electronics in the world, e.g., the electronic node of 3nm, electronic node of 2nm, CMOS technology at 14 Angstroms, as well as in the proprietary European FDSOI technology of 12nm and below, are direct testimony of the author's contributions in the scientific and technological field of micro- and nano-electronics.

Note: For each nominated person, please present the CV (uploaded as a single document of maximum 6 pages, saved with the name of the member, A4 format, Times New Roman font, 11-point font size, 1.15 line spacing and 2 cm margins).