



## Curriculum Vitae

### Personal information

Surname (s) / First name(s) **Macavei Gabriel Sergiu**

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Nationality(-ies) romanian

Date of birth 14 september 1966

### Workplace / Occupational field

**National Institute for Research and Development on Isotopic and Molecular Technologies, Cluj-Napoca, ROMANIA/ electronics engineer, IDT I**

### Work experience

Dates	1987– 1992	1992-2004	2004-2011	2011-2013	2011-present
Occupation or position held	<b>Electronist designer</b>	<b>Diplomat engineer I</b>	<b>Scientific researcher III</b>	<b>Tehnolog-Engineer II</b>	<b>Tehnolog-Engineer I</b>
Main activities and responsibilities	Design and manufacture of parts for mass spectrometry and chromatography	Design development and acquisition systems for EPR spectrometry, IR, NMR and X-ray diffractometry	Design development and acquisition systems ESR, AFM / STM, SQUID, VSM, X-ray, MRI, x-ray diffraction measurements, measurements AFM / STM	Development and design of measurement systems and characterize nanoparticles purchasing the RES, AFM / STM, SQUID, VSM, X-ray, MRI, x-ray diffraction measurements, measurements AFM / STM	Development and design of measurement systems and characterize nanoparticles, AFM / STM, SQUID, VSM, X-ray, MRI, X-ray diffraction measurements, measurements AFM / STM
	National Institute of Research and Development for Isotopic and Molecular Technologies, Cluj-Napoca	National Institute of Research and Development for Isotopic and Molecular Technologies, Cluj-Napoca	National Institute of Research and Development for Isotopic and Molecular Technologies, Cluj-Napoca	National Institute of Research and Development for Isotopic and Molecular Technologies, Cluj-Napoca	National Institute of Research and Development for Isotopic and Molecular Technologies, Cluj-Napoca
Type of business or sector activity	Research	Research	Research	Research	Research

### Education and training

Dates	1982-1986	1987-1992	2014-2019
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Title of qualification awarded  
Name and type of organisation providing education and training

State Exam

Engineer diplomat

PhD

Lic electronic ind.de nr.8 CujTechnical

“Technical University Faculty of Electronics and Telecommunications, Department of Applied Electronics Cluj

Technical University Faculty of Mecanics

**Personal skills and competences**

Mother tongue(s)

roumanian

Other language(s)

Self-assessment

European level (\*)

**english**

**french**

Understanding				Speaking				Writing	
Listening		Reading		Spoken interaction		Spoken production			
B2	Indep. user	B2	Indep. user	B2	Basic user	B2	Basic user	B2	Independent user
A2	Basic user	A2	Basic user	A1	Basic user	A1	Basic user	A2	Basic user

(\*) Common European Framework of Reference (CEF) level

Organisational skills and competences

► **Scientific activity**

• **49** communications at national and international conferences and congresses; • **22** articles published in national and international journals (20 ISI indexed); ; • **2** applied technological process; • **2 international projects as active member , 24 national projects as active member**

► scientific competence and necessary abilities for realisation of national or international projects⇒ **3 international projects as active member , 24 national projects as active member;**

► presents a large experience in upgrading laboratory equipment making circuits and devices necessary to accomplish projects (RES microscopy AFM / STM, SQUID, VSM, RX, MRI), maintenance for these devices

► **Competence domains**

► Development and design of measurement systems and characterize nanoparticles purchasing the RES, AFM / STM, SQUID, VSM, X-ray, MRI, X-ray diffraction measurements, measurements AFM / STM PLD deposition.

► Competence in advance materials science; \*Physics-Chemistry of composite magnetic materials; \*Physics-Chemistry of substances with luminescent properties; \*Clasic or non-conventional synthesis methods of materials with special optical properties; \*Composite magnetic materials

Computer skills and competences

Good command of Microsoft Office tools; knowledge of graphic design applications Design, P-CAD, Protel, Labview, Image processing, medical equipment setup and programming microprocessors MRI, CT SQUID, VSM, X-ray,PLD deposition

Other skills and competences

Member of professional associations: Roumanian Physical Society

**Additional information**

## Publications

➤ **Scientific activity**

• 49 communications at national and international conferences and congresses; • 22 articles published in national and international journals; • 2 applied technological process; • 3 international projects as active member, 24 national projects as active member

➤ **List of semnificative publications and patents**

## • ISI PAPERS

## • Journal Publications

1. Vasile V. Bințișan, Adrian Calborean, Mihaela Mocan, Sergiu Macavei, Adrian Cordoș, Catalin Ciuce, Adriana Bințișan, Romeo Chira, Georgiana Nagy, Valeriu Surlin, Dan Timofte, Felix Nickel, George Dindelegan, Constantin Ciuce, Stelian Brad, Mircea Murar, Bogdan Mocan: *New inductive proximity sensor platform for precise localization of small colorectal tumors*. DOI:10.1016/j.msec.2019.110146
2. Dana Toloman, Ovidiu Pana, Maria Stefan, Adriana Popa, Cristian Leostean, Sergiu Macavei, Dan Silipas, Ioana Perhaita, Mihaela Diana Lazar, Lucian Barbu-Tudoran: *Photocatalytic activity of SnO<sub>2</sub>-TiO<sub>2</sub> composite nanoparticles modified with PVP*. Journal of Colloid and Interface Science 02/2019; 542., DOI:10.1016/j.jcis.2019.02.026
3. S. Rada, M. Zagrai, M. Rada, L. Magerusan, A. Popa, R. Suci, S. Macavei, M. Suci: *Structure, electrochemical characterization and the role of copper oxide in lead-lead dioxide glasses and vitroceraamics*. Journal of Non-Crystalline Solids 07/2018; 491:55-63., DOI:10.1016/j.jnoncrysol.2018.04.001
4. Maria Stefan, Adriana Popa, Ovidiu Pana, Cristian Leostean, Dana Toloman, Diana Lazar, Florina Pogacean, Sergiu Macavei, Simona Gutoiu: *Efficient photocatalytic removal of RhB using magnetic Fe<sub>3</sub>O<sub>4</sub>-SnO<sub>2</sub> nanocomposites containing Sn<sup>2+</sup> interstitial impurities*. Journal of Materials Science Materials in Electronics 06/2018; 29(10), DOI:10.1007/s10854-018-9546-6
5. Sergiu Macavei, Marius Rada, Mioara Zagrai, Simona Rada, Victor Bodnarchuk, Radu Balan, Raul Erhan: *Spectroscopic Characterization of a Lead-Lead Dioxide Automobile Battery*. Analytical Letters 05/2018; 51(17):1-11., DOI:10.1080/00032719.2018.1447577
6. Dana Toloman, Adriana Popa, Maria Stefan, Ovidiu Pana, Teofil Danut Silipas, Sergiu Macavei, Lucian Barbu-Tudoran: *Impact of Gd ions from the lattice of TiO<sub>2</sub> nanoparticles on the formation of reactive oxygen species during the degradation of RhB under visible light irradiation*. Materials Science in Semiconductor Processing 11/2017; 71:61-68., DOI:10.1016/j.mssp.2017.07.004
7. Adriana Popa, Maria Stefan, Dana Toloman, Ovidiu Pana, Amalia Mesaros, Cristian Leostean, Sergiu Macavei, Olivian Marincas, Ramona Suci, Lucian Barbu-Tudoran: *Fe<sub>3</sub>O<sub>4</sub>-TiO<sub>2</sub>:Gd nanoparticles with enhanced photocatalytic activity and magnetic recyclability*. Powder Technology 11/2017; 325., DOI:10.1016/j.powtec.2017.11.049
8. C. Leostean, O. Pana, M. Stefan, A. Popa, D. Toloman, M. Senila, S. Gutoiu, S. Macavei: *New properties of Fe<sub>3</sub>O<sub>4</sub>@SnO<sub>2</sub> core shell nanoparticles following interface charge/spin transfer*. Applied Surface Science 08/2017; 427., DOI:10.1016/j.apsusc.2017.07.267
9. C. Vasile, M. Rapa, M. Stefan, M. Stan, S. Macavei, R. N. Darie-Nita, L. Barbu-Tudoran, D. C. Vodnar, E. E. Popa, R. Stefan, G. Borodi, M. Brebu: *New PLA/ZnO:Cu/Ag bionanocomposites for food packaging*. eXPRESS Polymer Letters 07/2017; 11(7):531-544., DOI:10.3144/expresspolymlett.2017.51
10. Sergiu Gabriel Macavei, Maria Suci, Izabell Crăciunescu, Lucian Barbu-Tudoran, Septimiu Cassian Tripon, Cristian Leostean, Radu Bălan: *SPION size dependent effects on normal and cancer cells*. DOI:10.24193/subbb.2017.1.02
11. S. Mitrici, S. Rada, E. Culea, L. Pop, A. Popa, A. Bot, S. Macavei, O. Pana, L. David: *Nickel-lead-borate glasses and vitroceraamics with antiferromagnetic NiO and nickel-orthoborate*

- crystalline phases*. Journal of Non-Crystalline Solids 06/2017; 471., DOI:10.1016/j.jnoncrysol.2017.06.019
12. Belén Fernández, Itziar Oyarzabal, Eva Fischer-Fodor, Sergiu Macavei, Ignacio Sanchez, José M Seco, Santiago Gómez-Ruiz, Antonio Rodríguez-Dieguez: *Multifunctional Applications of a Dysprosium-Based Metal-Organic Chain with Single-Ion Magnet Behaviour*. CrystEngComm 10/2016; 18(45)., DOI:10.1039/C6CE01810F
  13. M. Rada, N. Aldea, Z.H. Wu, Z. Jing, S. Rada, E. Culea, S. Macavei, R. Balan, R.C. Suci, R.V. Erhan, V. Bodnarchuk: *Evolution of the germanium–oxygen coordination number in lithium–lead–germanate glasses*. Journal of Non-Crystalline Solids 04/2016; 437:10-16., DOI:10.1016/j.jnoncrysol.2016.01.015
  14. O. Pana, C. Leostean, M.L. Soran, M. Stefan, S. Macavei, S. Gutoiu, V. Pop, O. Chauvet: *Synthesis and characterization of Fe–Pt based multishell magnetic nanoparticles*. Journal of Alloys and Compounds 10/2013; 574:477–485., DOI:10.1016/j.jallcom.2013.05.153
  15. Ioanna Savva, Maria Demetriou, Andreas Othonos, Rodica Turcu, Adriana Popa, Sergiu Macavei, Theodora Krasia-Christoforou: *Well-defined fluoro- and carbazole-containing diblock copolymers: Synthesis, characterization and immobilization onto Au-coated silicon surfaces*. RSC Advances 09/2012; 2(23):8741-8751., DOI:10.1039/C2RA20650A
  16. O. Pana, M. L. Soran, C. Leostean, S. Macavei, E. Gautron, C. M. Teodorescu, N. Gheorghe, O. Chauvet: *Interface charge transfer in polypyrrole coated perovskite manganite magnetic nanoparticles*. Journal of Applied Physics 02/2012; 111(4)., DOI:10.1063/1.3686662
  17. O. Pana, C. Leostean, M. L. Soran, M. Stefan, S. Macavei, N. G. Gheorghe, C. M. Teodorescu: *Magnetization Enhancement Of Magnetic Nanoparticles Coated With Polypyrrole*. 02/2012; 1425(1):135-138., DOI:10.1063/1.3681985
  18. C. Leostean, O. Pana, R. Turcu, M. L. Soran, S. Macavei, O. Chauvet, C. Payen: *Comparative study of core–shell iron/iron oxide gold covered magnetic nanoparticles obtained in different conditions*. Journal of Nanoparticle Research 11/2011; 13(11)., DOI:10.1007/s11051-011-0313-3
  19. N. Aldea, V. Rednic, S. Pintea, P. Marginean, L. Rednic, V. Pop, E. Dorolti, S. Macavei, F. Matei: *Dimensionality analysis of supported Ni nanoclusters through XRD and magnetic measurements*. Digest Journal of Nanomaterials and Biostructures 01/2011; 6(4):1991-2000.
  20. Rodica Turcu, Alexandrina Nan, Izabell Craciunescu, Cristian Leostean, Sergiu Macavei, Alina Taculescu, Oana Marinica, Camelia Daia, Ladislau Vekas: *Synthesis and Characterization of Magnetically Controllable Nanostructures Using Different Polymers*. 12/2010; 1311(1)., DOI:10.1063/1.3530014
  21. R Turcu, A Nan, I Craciunescu, O Pana, C Leostean, S Macavei: *Smart composites based on magnetic nanoparticles and responsive polymers*. Journal of Physics Conference Series 09/2009; 182(1):012081., DOI:10.1088/1742-6596/182/1/012081
  22. O. Pana, R. Turcu, M. L. Soran, S. Macavei, C. Leostean: *Synthesis and characterization of LSMO nanoparticles covered with Au having a core-shell structure*. Journal of Physics Conference Series 08/2009; 182(1)., DOI:10.1088/1742-6596/182/1/012071

- **RESEARCH PROJECTS**

**Active member in national projects**

Project title	Function in the project	Date of project
NMR study of heterogeneous systems with applications in the chemical industry	Diplomat engineer	1996-1999
RELANSIN Technology to achieve industrial level of vitreous ceramic materials and systems used to store radioactive waste	Diplomat engineer	2000-2002
SCOPES 2000 Design and execution of a magnetic resonance spectrometer at 200 MHz	Diplomat engineer	2000-2004
CEEX MENER nr. 710/24.07.06 " Hydrogen production by way fotoelectrolitic "- Hydrosol	CS III	2006-2008
CEEX – VIASAN nr. 102/01.08.06 cu titlul „	CS III	2006-2008

Biocomposites with the application porphyrins in photodynamic therapy of malignant tumors skin"		
CEEX - MATNANTECH" nr. 243(407)/2004, "Advanced photovoltaic devices based coatings sensitized nanocrystalline TiO2	CS III	2004-2006
MATNANTECH" nr. 31/2005 " Luminescent materials optoelectronic devices - OPTOLUM	CS III	2005-2007
Systems based nanostructured biocompatible magnetic nanoparticles and polymers in response to external stimuli " contract no. 71-068/2007, PNII, Program 4: Partnerships in priority area	CS III	2007-2012
Co-financing contract project "Production of magnetic nanoparticles advanced intelligent life processes and products" (Advanced Magnetic nanoparticles deliver smart Processes and Products for Life) - MagPro2Life, No PNII Capacities Programme. 83-EU/01.07.2010	CS III	2010-2012
Advanced Magnetic nanoparticles deliver smart Processes and Products for Life", MagPro <sup>2</sup> Life, FP7-NMP-2008-LARGE-2 nr. 229335, 2009-2013	CS III	2009-2013
PN II 71-063 / 2007 Induced magnetization materials controlled by external parameters	CS III	2007 – 2010
PN II 71-119 / 2007 Configurations ordered ferromagnetic and superparamagnetic nanoparticles	CS III	2007 – 2010
PN II 72-165 / 2008 Transparent oxide semiconductor nanostructures with controlled properties by doping, for applications in optoelectronics, spintronics and piezotronics	CS III	2008 - 2011
PN II 72-186 / 2008 Magnetic nanocomposite materials reinforced by exchange	CS III	2008 - 2011
Composite nanoparticles with core-shell structure based on predetermined magnetic and semiconductor properties PD 54/2011, 2011-2013	IDTII	2011-2013
Based composite nanoparticles Fe and Pt magnetic properties, and functional adjustable dispersive PCE ID_119/2011, 2011-2014	IDT I	2011 - 2014
Optimization of recycled lead for car battery applications PN III 13/BM/2018-2019	IDT I	2018 - 2019
High Performance Materials for the next generation Space Thermoelectric PNCDI-III-C3-2016 STAR Programme	IDT I	2016 - 2019
Precise Laparoscopic Extraluminal Detection of Colorectal Tumors using Golden-Platinum coated Tacks and Augmented PNCDI III 238PED 2017-2018	IDT I	2017 - 2018

Date  
01.10.2019

**Macavei Gabriel Sergiu**