

PERSONAL INFORMATION

Mariana Braic

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WORK EXPERIENCE

- 2002–Present **Research Scientist I**
National Institute for Optoelectronics INOE 2000, Magurele (Romania)
- 1996–2002 **Research Scientist III**
National Institute for Optoelectronics INOE 2000, Magurele (Romania)
- 1992–1996 **Research Scientist III**
The Institute for Optoelectronics S.A., Magurele (Romania)
- 1982–1992 **Research Scientist**
National Institute for Laser, Plasma, and Radiation Physics, Magurele (Romania)
- 1980–1982 **Physicist**
Felix Electronic Computer Enterprise

EDUCATION AND TRAINING

- 1999 **Doctor of Philosophy, Physics** EQF level 8
University of Bucharest, Bucharest (Romania)
- 1981 **MSc Diploma, Nuclear Physics** EQF level 7
University of Bucharest, Bucharest (Romania)
- 1980 **BSc Diploma Physicist** EQF level 7
University of Bucharest, Bucharest (Romania)

PERSONAL SKILLS

Mother tongue(s) Romanian

Other language(s)

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken	Spoken	

			interaction	production	
English	C2	C2	C2	C2	C2
French	C2	C2	C1	C1	C1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages

Communication skills

The ability to convey a wide range of complex scientific ideas, to a specialist or generalist audience, as evidenced by a proven record of published research papers, talks at conferences, and successful applications for research funding.

Organisational / managerial skills

- Management skills proven by a track record of managing research grants.
- Principal organizer conference symposiums:
 - "Carbon -or nitrogen-containing nanostructured composite films" - E- MRS Spring 2010, Strasbourg, France and E-MRS 2014, Lille, France
 - "Functional oxynitride films for sustainable development" - E-MRS Spring 2016, Lille, France

Digital competence

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Independent user	Independent user	Basic user	Independent user	Basic user

Digital competences - Self-assessment grid

MS Windows, MS Office, Origin, Optilayer

ADDITIONAL INFORMATION

Patents

- 10 granted patents, including:
 - RO129452/**2016** New materials based on transition metals silicide and oxinitride for biomedical applications, A. Vladescu, **M. Braic**, V. Braic, M. Balaceanu
 - RO128478/**2015** Biocompatible multi-layer material for coating the intervertebral metal disk implants, **M. Braic**, V. Braic, M.Balaceanu, A.Vladescu
 - RO127021B1/**2014**, Semiconductor material based on InxZnyN for application in optoelectronics, **M. Braic**, C. N. Zoita, L. Braic
 - RO123559/**2013** Semiconductor material based on InxAlyN for application in optoelectronics, V. Braic, C.N.Zoita, **M.Braic**
 - RO123356/2011, Thin film biocompatible coatings for NiTi and NiTiNb type shape memory alloys, V. Braic, **M. Braic**, M. Balaceanu, C.N. Zoita, A.E. Kiss, A. Vladescu
 - RO122881/**2010**, Material made of two thin reflective layers for the electromagnetic radiations with a wavelength ranging from 10 to 20 nm, **M. Braic**, V. Braic, M. Balaceanu
 - RO122100/**2008**, Substrate holder for thin film deposition by magnetron sputtering in magnetic field, **M. Braic**, V. Braic, M. Balaceanu

Publications in ISI journals

- 89 research papers in ISI journals.
- Papers published in the last period (**2013-2017**):
 1. A biodegradable AZ91 magnesium alloy coated with a thin nanostructured hydroxyapatite for improving the corrosion resistance, T.M. Mukhametkaliyev, M.A. Surmeneva, A. Vladescu, C.M. Cotrut, **M. Braic**, M. Dinu, M.D. Vranceanu, I. Pana, M. Mueller, R.A. Surmenev, *Materials Science and Engineering: C*, 75 (2017) 95–103
 2. Tribological behaviour of RF-magnetron sputter deposited hydroxyapatite coatings in physiological solution, M. Dinu, A. A. Ivanova, M. A. Surmeneva, **M. Braic**, A. I. Tyurin, V. Braic, R. A. Surmenev, A. Vladescu, *Ceramics International* 43 (2017), 6858–6867
 3. Protective performance of Zr and Cr based silico-oxynitrides used for dental applications by means of potentiodynamic polarization and odd random phase multisine electrochemical impedance spectroscopy, M. Dinu, T. Hauffman, C. Cordioli, A. Vladescu, **M. Braic**, A. Hubin, C. M. Cotrut, *Corrosion Science* 115 (2017) 118–128
 4. A comparative study of the structural, mechanical and tribological characteristics of TiSiC-Cr coatings prepared in CH₄ and C₂H₂ reactive atmosphere by cathodic vacuum arc, **M. Braic**, A. Vladescu, M. Balaceanu, C. Luculescu, S. C. Padmanabhan, L. Constantin, M. A. Morris, V. Braic, C. E. A. Grigorescu, P. Ionescu, M. D. Dracea, C. Logofatu, *Applied Surface Science*, 400 (2017) 318–328
 5. Corrosion and tribological performance of quasi-stoichiometric titanium containing carbo-nitride coatings, C.I. Pruncu, M. Braic, K.D. Dearn, C. Farcau, R. Watson, L.R. Constantin, M. Balaceanu, V. Braic, A. Vladescu, *Arabian Journal of Chemistry*, (2016), <http://dx.doi.org/10.1016/j.arabjc.2016.09.009>
 6. Study on a hydrophobic Ti-doped hydroxyapatite coating for corrosion protection of titanium based alloy, M. Surmeneva, A. Vladescu, R. Surmenev, C. M. Pantilimon, M. Braic, C. M. Cotrut, *RSC Advances*, 6 (2016) 87665-87674, doi: 10.1039/C6RA03397K
 7. In vitro biocompatibility of Si alloyed multi-principal element carbide coatings, A. Vladescu, I. Titorencu, Y. Dekhtyar, V. Jinga, V. Pruna, M. Balaceanu, M. Dinu, I. Pana, V. Vendina, M. Braic, *Plos One*, 11 (2016), doi:10.1371/journal.pone.0161151
 8. Mechanical properties and biocompatibility of the sputtered Ti doped hydroxyapatite, A. Vladescu, S.C. Padmanabhan, F. Ak Azem, **M. Braic**, I. Titorencu, I. Birlik, M.A. Morris, V. Braic, *Journal of the Mechanical Behavior of Biomedical Materials*, 63 (2016) 314–325
 9. In vitro corrosion resistance of Si containing multi-principal element carbide coatings, M. Dinu, I. Pana, V. Braic, F. Miculescu, M. Balaceanu, A. Vladescu, **M. Braic**, *Materials and Corrosion* 67 (2016)908-914, doi:10.1002/maco.201508788
 10. Effects of Zr, Nb or Si addition on the microstructure, mechanical and corrosion resistance of TiCN hard coatings, L. Constantin, **M. Braic**, M. Dinu, M. Balaceanu, V. Braic, C. Farcau, A. Vladescu, *Materials and Corrosion* 67 (2016) 929-938.
 11. Influence of Ag content on the antibacterial properties of SiC doped hydroxyapatite coatings, M. Badea, **M. Braic**, A. Kiss, M. Moga, E. Pozna, I. Pana, A. Vladescu, *Ceramics International*, 42 (2016) 1801-181, doi:10.1016/j.ceramint.2015.09.143
 12. How morphology determines the charge storage properties of Ge nanocrystals in HfO₂, A. Slav, C. Palade, A. M. Lepadatu, M. L. Ciurea, V. S. Teodorescu, S. Lazanu, A. V. Maraloiu, C. Logofatu, **M. Braic**, A. Kiss, *Scripta Materialia*, 113 (2016) 135 – 138, <http://dx.doi.org/10.1016/j.scriptamat.2015.10.028>

13. Tunable optical properties of SiNx thin films by OES monitoring in a reactive RF magnetron plasma, I. Pana, C. Vitelaru, N.C. Zoita, **M. Braic**, *Plasma Processes and Polymers*, 13 (2016) 208-216, doi: 10.1002/ppap.201400202
14. TiSiC, TiSiC-Zr and TiSiC-Cr coatings - corrosion resistance and tribological performance in saline solution, A. C. Parau, C. Vitelaru, M. Balaceanu, V. Braic, L. R. Constantin, **M. Braic**, A. Vladescu, *Tribology Transactions*, 59 (2016) 72-79, doi: 10.1080/10402004.2015.1077406
15. Corrosion behaviour of Ti - 10Nb - 10Zr - 5Ta alloys in artificial saliva solution with fluoride content, **M. Braic**, A. Vladescu, V. Braic, C. M. Cotrut, D. Stanciu, *Materials and Corrosion*, 66 (2015) 1331-1337, doi: 10.1002/maco.201508382
16. Investigation of multilayered TiSiC/NiC protective coatings, A. Vladescu, **M. Braic**, M. Balaceanu, A. C. Parau, M. Dinu, *Vacuum*, 120 (2015) 60-66, doi:10.1016/j.vacuum.2015.06.019
17. Hetero-epitaxial growth of TiC films on MgO(001) at 100 ° C by DC reactive magnetron sputtering, **M. Braic**, N.C. Zoita, M. Danila, C.E.A. Grigorescu, C. Logofatu, *Thin Solid Films*, 589 (2015) 590-596, doi:10.1016/j.tsf.2015.06.021
18. Effect of the deposition temperature on corrosion resistance and biocompatibility of the hydroxyapatite coatings, A. Vladescu, **M. Braic**, F. Ak Azem, I. Titorencu, V. Braic, V. Pruna, A. Kiss, A.C. Parau, I. Birlik, *Applied Surface Science*, 354 (2015) 373-379, doi:10.1016/j.apsusc.2015.05.059
19. Growth and characterization of arc evaporated TiSiC-Ni coatings, M. Balaceanu, A. C. Parau, **M. Braic**, A. Vladescu, C. R. Luculescu, C. Logofatu, V. Braic, *Tribology Letters*, 58 (2015) 43, doi: 10.1007/s11249-015-0521-6
20. Improvement of the tribological performance in corrosive environment of CoCr alloy by TiSiON coatings, M. Dinu, M. Cojocar, V. Braic, M. Tarcolea, **M. Braic**, F. Miculescu, A. Vladescu, C. M. Cotrut, *Applied Surface Science*, 332 (2015) 295-299, doi: 10.1016/j.apsusc.2015.01.221
21. The effect of TiSiN interlayers on bond strength of dental ceramic to NiCr and CoCr alloys, A. Vladescu, M. Dinu, **M. Braic**, C. Vitelaru, M. Balaceanu, M. Tarcolea, V. Braic, F. Baciu, C. M. Cotrut, *Ceramics International*, 41 (2015) 8051 - 8058, doi: 10.1016/j.ceramint.2015.03.001
22. Solid solution or amorphous phase formation in TiZr-based ternary to quinary multi-principal-element films, **M. Braic**, V. Braic, A. Vladescu, C. N. Zoita, M. Balaceanu, *Progress in Natural Science: Materials International*, 24 (2014) 305 -312, doi: 10.1016/j.pnsc.2014.06.001
23. Effects of substrate temperature and carbon content on the structure and properties of (CrCuNbTiY)C multicomponent coatings, V. Braic, A.C. Parau, I. Pana, **M. Braic**, M. Balaceanu, *Surface and Coatings Technology*, 258 (2014) 996 - 1005, doi: 10.1016/j.surfcoat.2014.07
24. Characterization of the Ti - 10Nb - 10Zr - 5Ta alloy for biomedical applications. Part 2: wettability, tribological performance and biocompatibility, V. Braic, M. Balaceanu, **M. Braic**, C. Vitelaru, I. Titorencu, V. Pruna, A. C. Parau, C. Fanara, A. Vladescu, *Journal of Materials Engineering and Performance*, 23 (2014) 326-332, doi: 10.1007/s11665-013-0738-1
25. Influence of film thickness on the morphological and electrical properties of epitaxial TiC films deposited by reactive magnetron sputtering on MgO substrates, N.C. Zoita, V. Braic, M. Danila, A.M. Vlaicu, C. Logofatu, C.E.A. Grigorescu, **M. Braic**, *Journal of*

- Crystal Growth, 389 (2014) 92-98, doi:10.1016/j.jcrysgro.2013.11.070
26. Deposition and characterization of multi-principal-element (CuSiTiYzr)C coatings, **M. Braic**, M. Balaceanu, A. Vladescu, C.N. Zoita, V. Braic, Applied Surface Science, 284 (2013) 671-678, doi:10.1016/j.apsusc.2013.07.152
27. Characterization of the Ti – 10Nb – 10Zr – 5Ta alloy for biomedical applications. Part 1: microstructure, mechanical properties and corrosion resistance, A.Vladescu, V.Braic, M.Balaceanu, **M.Braic**, A.C.Parau, S.Ivanescu, C.Fanara, Journal of Materials Engineering and Performance, 22 (2013) 2389-2397, doi:10.1007/s11665-013-0517-z
28. Corrosion resistance, mechanical properties and biocompatibility of Hf-containing ZrCN coatings, C.M.Cotrut, V.Braic, M.Balaceanu, I.Titorencu, **M.Braic**, A.C.Parau, Thin Solid Films, 538 (2013) 48-55, doi:10.1016/j.tsf.2012.12.100
29. Arc plasma deposition of TiSiN/Ni nanoscale multilayered coatings, A.Vladescu, V. Braic, **M.Braic**, M. Balaceanu, Materials Chemistry and Physics, 138/2-3 (2013) 500-506, doi:10.1016/j.matchemphys.2012.12.010

Reviewer for ISI-indexed journals

- Applied Surface Science;
- Vacuum
- Physica Status Solidi
- Reviews on Advanced Materials Science
- Solid State Sciences
- Chemical Vapour Deposition
- Vacuum
- Photochemistry and Photobiology A- Chemistry
- Surface & Coatings Technology
- Thin Solid Films
- Nuclear Instruments and Methods-B.

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