



## Europass Curriculum Vitae

### Personal information

First name(s) / Surname(s) **Emanoil SURDUCAN**

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Nationality Romanian

Date of birth 17.05.1956

Gender Male

**Desired employment / Occupational field** **Engineer, senior researcher on microwaves applications**

### Work experience

Dates	December 1998 onwards October 1992 – December 1998 September 1985 – October 1992
Occupation or position held	Senior researcher 2 Senior researcher 3 Researcher
Main activities and responsibilities	Researches related to microwaves interaction with molecular and bio-molecular systems, bio-method to reduce environmental electromagnetic pollution, low power electromagnetic processing of biological systems; scientific research consultant on two (2) projects, project manager on one (1) economical project, project manager or associate manager on six (6) national research projects;  Non- conventional methods and techniques of microwave power processing - applications on molecular physics; project manager on two (2) economical and one (1) research projects  Microwaves application on: moisture measurements on ceramic and textile manufacturing process, microwave-induced plasma in surface polymers activation, thermal treatments ; project manager on two (2) economical projects, one of them finalized with homologated product.
Name and address of employer	National Institute for Research and Development of Isotopic and Molecular Technologies (INCDTIM), Department of Molecular and Biomolecular Systems, 65 - 103 Donath St., POB 700, 400293 Cluj-Napoca, România
Type of business or sector	R&D institution
Dates	October 2009 -2013
Occupation or position held	visiting professor
Main activities and responsibilities	Bio electromagnetic interaction and standards for electromagnetic exposure protection
Name and address of employer	Technical University of Cluj-Napoca, Faculty of Electronics, Telecommunications and Information Technology, 26 – 28 G. Baritiu St., 400027 Cluj-Napoca, Romania
Type of business or sector	Education
Dates	2004-2007
Occupation or position held	consultant engineer researcher
Main activities and responsibilities	consultant on microwaves antennas and radio frequencies (RF) front end design for software-defined radio (SDR) applications
Name and address of employer	Sandbridge Technologies Inc., White-Plains, 1 North Lexinton Avenue, NY 10601,USA

Type of business or sector | Research & investing information  
 Dates | 1981-1985  
 Occupation or position held | Engineer Physicist  
 Main activities and responsibilities | Quality control; Ultrasonic nondestructive measurements on ceramic materials;  
 Ceramics dielectric permittivity measurements on ceramics;  
 Name and address of employer | Electro-ceramics Enterprise, Turda, Romania  
 Type of business or sector | economic

**Education and training**

Dates | November 2007  
 Title of qualification awarded | base management  
 Principal subjects/occupational skills covered | Modern Management – application in research management  
 Name and type of organisation providing education and training | Technical University of Cluj Napoca, Romania, Department of Academical Post-University Studies  
 Dates | 1993 - 1997  
 Title of qualification awarded | PhD Specialization in molecular physics  
 Principal subjects/occupational skills covered | Microwaves absorption measurements for substance characterization  
 Name and type of organisation providing education and training | Faculty of Physics, "Babes-Bolyai" University, Cluj-Napoca, Romania  
 Level in national or international classification | ISCED 6  
 Dates | September 1976 - June 1981 (5 years studies not compatible with Bologna classification)  
 Title of qualification awarded | Diplomat Engineer Physicist  
 Principal subjects/occupational skills covered | Technological physics, Measurement and control methods  
 Name and type of organisation providing education and training | Faculty of Technological Physics, Bucharest University, Bucharest- Magurele, Romania  
 Level in national or international classification | ISCED 5a

**Personal skills and competences**

Mother tongue(s) | **Romanian**

Other language(s) | **English, French**

Self-assessment  
*European level (\*)*

**English**

**French**

Understanding				Speaking				Writing	
Listening		Reading		Spoken interaction		Spoken production			
B2	Independent user	B2	Independent user	A2	Basic user	B2	Independent user	B2	Independent user
A2	Basic user	B1	Independent user	A1	Basic user	A2	Basic user	A2	Basic user

(\*) [Common European Framework of Reference for Languages](http://www.cedefop.europa.eu/en/files/questdocument/20080101/20080101_01_en.pdf)

Social skills and competences | Good communication skills gained through seminars and personal experience as project manager;  
 Invited television lectures at TVR-Cluj, SCIENCE and KNOWLEDGE series - redactor Cristian Muresan

Organisational skills and competences	<p>Member of the INCDTIM Scientific Council between 2002-2008;  Vice-president of the INCDTIM Scientific Council between 2004-2006;  President of the Researchers' Union Organization between 1994-1996  Microwaves team leadership, good experience in project or team management acquired as project leader of 15 projects . Last 6 coordinated projects as team manager or associated team manager are:</p> <ul style="list-style-type: none"> <li>- Implicate order experiments on microwaves resonator (CNCSIS National Grant) team manager (2002-2004)</li> <li>- Microwaves power dynamic processing of material with device controlled by embedded system (National CERES Programme) team manager (2003-2005)</li> <li>- Data logger microwaves detector for biological protection (National CERES Programme) team manager (2004-2006)</li> <li>- Research related to bio-electromagnetic interactions and the correlated human impact to electromagnetic waves exposure (National CEEX Programme) associate team manager (2005-2007)</li> <li>- Microwaves interaction with molecular and bio-molecular systems (National CEEX Programme) team manager (2005-2008)</li> <li>- Laboratory convection experiments with internal, non-contact, microwave generated heating, applied to Earth's mantle dynamics (PN-II-ID-JRP-2011-1 Romania-France), principal investigators ( 2011-2014)</li> </ul>
Technical skills and competences	<p>Microwave circuit design and characterization; Microwave methods for dielectric properties measurements in composite materials; Low power microwave and microwave power field distributions measurements; Microwaves power material processing applications; microwaves power plasma applications; These skills and competences were acquired through work on research projects.</p>
Computer skills and competences	<p>Good command of Microsoft Office tools; basic knowledge of graphic design applications (Adobe Illustrator, PhotoShop, IrfanView), basic knowledge of microwaves circuit design (Sonnet, Zeland 3D, Microwave Office, COMSOL), basic knowledge of mechanical design (Designer) , basic knowledge of CAD Tools (CircuitsCAM), basic knowledge of BASIC and C+ programming, basic knowledge of design, test and use of Brain-Computer Interfaces (OpenViBE software)</p>
Artistic skills and competences	<p>Hobbies on photography, toys design and prototyping</p>
<b>Additional information</b>	<p><b>Prizes, distinctions:</b> 17 medals (9 gold, 6 silver, 2 bronze) at international patent fairs and exhibitions  -The "Procedure and device for microwave dynamic processing of materials" Patent, RO-00122063, has obtained 3 gold medals at the 35th IEINTP - Geneva, 2007, 12th IEI –INVENTIKA - Bucharest, 2007, 8th IEI-PROINVENT – Cluj Napoca, Romania, 2010  -Second prize of the Romanian National Authority for Scientific Research (ANCS) in 2007, for the research project Cex-D11-80/2005 "Microwaves interaction with molecular and biomolecular systems"</p> <p><b>Summary of publications:</b>  -Patent and patent pending: 3 US patent, 2 EU patent, 7 Romanian patent, 2 WIPO patent pending, 2 Koreaa patent pending, 7 Romanian patent pending;  - Published papers (proceedings, articles) : 31  - Book chapters : 3  - National, international conferences, international patent fairs and exhibitions : more than 70</p>

## Annexes

### Patents and patents pending list and related distinctions

- 1-4) E.Surducan, Daniel Iancu, John Glossner, "Microstrip multi-band composite antenna",  
**US Patent US 7,746,276 / 29 Jun.2010**,  
**European Patent EU 1854169/ 14.11.2007**,  
Korean patent pending **KR 20070102491 (A) /18.10.2007**  
International patent pending (**WIPO**) **WO2006086194 (2006)**,
- 5-8) E.Surducan, Daniel Iancu, John Glossner, "Modified printed dipole antennas for wireless multi-band communication"  
**US Patent US 7,095,382 B2**, ( Aug.22, 2006) ,  
**European Patent, EU 1,687,867 /09.08.2006**,  
Korean patent pending **KR 20060123188/01.12.2006**,  
International patent pending (**WIPO**) **WO2005053092A1(2005)**
- 9) E.Surducan, Daniel Iancu, John Glossner, "Modified printed dipole antennas for wireless multi-band communication, (Part I) " **US Patent US 7,034,769 B2**, (Apr.25, 2006)
- 10) E.Surducan, V. Surducan, Adela Halmagyi, "Process and installation for stimulating plat development in microwaves field", patent pending, **RO- 125068 / 28.02.2012**
- 11) E.Surducan, V.Surducan, Soran Maria Loredana, Bros Ildiko, " Microwaves power device for chromatographic separation of chemical compounds", **patent**, Brevet **RO 123363 /28.10.2011**
- 12) E.Surducan, V.Surducan "*Procedure and device for dynamic processing of materials*" Romanian Patent, **RO 00122063 B1(2008)** **Gold Medal** at the 35th IEI, New Techniques and Products, Geneva, 2007, **Gold Medal** at the 12 th IEI, *INVENTIKA*- Bucuresti, Romania, 2007, **Gold Medal** at the 8th IEI-PROINVENT – Cluj Napoca, Romania, 2010
- 13) E. Surducan, S.V. Filip, V. Surducan, *Process for Activation of the EPDM Rubber in Microwave Plasma*, Romanian Patent, **RO 00116624**
- 14) E. Surducan, V. Surducan, G. Nagy, S.V. Filip, *Installation for Treatment in Microwave Field*, Romanian Patent, **RO 00116514**, **Bronze Medal** at the 30<sup>th</sup> International Exhibition of Inventions, New Techniques and Products, Geneva, 2002
- 15) E.Surducan, V.Surducan, *The process and device for heating fluids without dielectric losses*, Romanian Patent, **RO 00116515**, **Gold Medal** at The 50th Anniversary World Exhibition of Innovatiopn Research and New Technology EUREKA - BRUSSELS, 2001
- 16) E.Surducan, V.Surducan, *The thermographic transducer for high power microwave radiation*, Romanian Patent, **RO 00116506**, **Silver Medal** at The 52th World Exhibition of Innovatiopn Research and New Technology EUREKA - BRUSSELS, 2003,
- 17) S.V. Filip, E. Surducan, *Process for Acridone Synthesis*, Romanian Patent, **RO 00114616**

### ROMANIAN PATENTS PENDING

- 1) E.Surducan, V. Surducan, Dispozitiv pentru conectarea unui aparat fotografic la o incinta de tratament in camp de microunde de putere pentru preluarea in timp real a imaginilor probei procesate –patent pending RO-A00567-30-07-2012
- 2) V.Surducan, E.Surducan, Camelia Neamtu, "Embedded module for driving microwave generators in medical and laboratory applications" patent pending RO – A00113/11.02.2010, **Silver Medal** at the 14 th International Exhibition of Inventions, *INVENTIKA*- Bucuresti, Romania, 2010
- 3) V.Surducan, E.Surducan, "Supply system for electronic microcontroller driven relay" patent pending RO – A00365/06.02.2009
- 4) E.Surducan, V. Surducan, "Method and transducer for temperature measurements in microwaves power processing of materials" patent pending RO – A00582/27.07.2009, **Gold Medal** at the 14 th International Exhibition of Inventions, *INVENTIKA*- Bucuresti, Romania, 2010
- 5) G. Popeneciu, I.Coldea, I. Misan, Gabriela Balnita, E.Surducan, V.Surducan, "Microwaves Sintesys of the metal-organic structures at normal pressure", patent pending RO A/00737 din 18.09.2009
- 6) V.Surducan, E.Surducan, "Universal driver for unipolar step motor", patent pending, RO – A00130/06.02.2009

### PROCEEDINGS, BOOKS and LECTURES – selective list-2006-2011

1. V.Surducan, E.Surducan, "Low-Cost Microwave Power Generator for Medical and Scientific Use, IEEE Microwave Magazine, vol. 14, issue 4, 124-130, 2013 <http://dx.doi.org/10.1109/MMM.2013.2248651>
2. Cora Iftode, Simona Miclaus, Paul Bechet, Emanoil Surducan, A TEM cell Model Analysis for Radiofrequency Dosimetry Improvement by Computational Means, Proceedings of the 7<sup>th</sup> International Symposium on Advanced Topics in Electrical Engineering, Bucharest 12-14May, 2011, pp.305-309, ISSN 2068-7966
3. Vasile Surducan, Emanoil Surducan, Radu Ciupa, Camelia Neamtu, Determination of Microwave Generators' Performance for Medical applications, Proceedings of the 7<sup>th</sup> International Symposium on Advanced Topics in Electrical Engineering, Bucharest 12-14May, 2011, pp.551-555, ISSN 2068-7966

4. Vasile Surducan and Emanoil Surducan, "Increase efficiency in embedded digital-I/O lines", *Electronicdesign, Strategy,News (EDN)-DesignIdeas*, pag. 54-59, APRIL 21, **2011**  
<http://www.edn.com/archive/2011/20110421.php>
5. Vasile Surducan, Emanoil Surducan, Medical and scientific apparatus with microwave thermal and non-thermal effect, *Nonconventional Technology Review*, nr.1, pag.42-49, **2010**,  
<http://www.rectn.ro/no1-2010.html>
6. M.L.Soran, S.C.Cobzac, C.Varodi, I.Lung, E.Surducan, V.Surducan, Extraction and Chromatographic Determination of Essentials Oils from *Ocimum Basilicum* L. Leaves, *Studia UBB, Chemia, LV*, 3, pag.31-37, **2010**
7. Emanoil Surducan, Vasile Surducan, Camelia Neamtu, Cristian D.Tudoran, Near-field Effect of the Microwaves Power Applicators Investigated for Liquid Processing Applications, *Proceedings of IEEE International Conference on Automation, Quality and testing, Robotics - AQTR-2010*, pp360-364, IEEE Cat. Nr.CFP10AQTR-PRT, ISBN 978-1-4244-6722-B
8. Vasile Surducan, Emanoil Surducan, Radu Ciupa, Marius-Roman, Embedded System Controlling Microwave Generators in Hyperthermia and Diathermy Medical Devices, *Proceedings of IEEE International Conference on Automation, Quality and testing, Robotics - AQTR-2010*, pp366-372, IEEE Cat. Nr.CFP10AQTR-PRT, ISBN 978-1-4244-6722-B
9. V. Surducan, M.Moudgill, G. Nacer, E. Surducan, P. Ba I z o l a , J. Glossner, S. Stanley, Meng Yu, and D. Iancu, "The Sandblaster Software-Defined Radio Platform for Mobile 4G Wireless Communications", *International Journal of Digital Multimedia Broadcasting*, vol. 2009, Article ID 384507, 9 pages, **2009**. doi:10.1155/2009/384507.
10. V Surducan, Ildiko Lung, E Surducan, , "The effect of coloured light on *Ipomoea purpurea* growth", *Journal of Physics: Conference Series* 182 (**2009**) 012018 doi:10.1088/1742-6596/182/1/012018
11. E Surducan, C Neamtu and V Surducan, "Dielectric properties of Zea Mays kernels – studies for microwave power processing applications", *Journal of Physics: Conference Series* 182 (**2009**) 012017 doi:10.1088/1742-6596/182/1/012017
12. "The extraction and chromatographic determination of the essentials oils from *Ocimum basilicum* L. by different techniques" Maria Loredana Soran, Simona Codruta Cobzac, Codruta Varodi, Ildiko Lung, Emanoil Surducan and Vasile Surducan, *Journal of Physics: Conference Series* 182 (**2009**) 012016 doi:10.1088/1742-6596/182/1/012016
13. E. Surducan, V.Surducan, D.Iancu, J.Glossner, "Multiband Antennas for SDR Applications," *International Journal of Digital Multimedia Broadcasting*, vol. 2009, Article ID 460143, 9 pages, **2009**. doi:10.1155/2009/460143.
14. M.L.Soran, I.Bros,E.Surducan,V.Surducan, Microwave Assisted Thin Layer Chromatography – an Improved Separation Technique, *Journal of Planar Chromatography*, 21 (**2008**) 4, pag.: 243–248
15. Miclaus S., Surducan E., Helbet R., Study of the propagation modes and of the leakage field of a multimode microwave cavity, *Buletinul Stiintific al Academiei Fortelor Terestre*, nr. 1/**2008**
16. Emanoil Surducan, Vasile Surducan, Adela Halmagyi, Daniel S. Iancu, "Microwaves Irradiation Experiments on Biological Samples Using a Wireless Unit", **Book of proceedings** -11th International Symposium on Microwave and Optical Technology (ISMOT-2007) pp. 397-400, ISBN 978-88-548-1476-9
17. Emanoil Surducan, Vasile Surducan, Daniel S. Iancu, John Glosner, "Multi-bands antenna with adaptive circuit", **Book of proceedings** -11th International Symposium on Microwave and Optical Technology (ISMOT-2007) pp. 633-636, ISBN 978-88-548-1476-9
18. Surducan, E.; Iancu, D.; Surducan, V.; Glossner, J., Miniature multiband antennas for hand held WiMAX and WiFi application, *Electromagnetics in Advanced Applications*, 2007. ICEAA 2007. International Conference on Volume, Issue , 17-21 Sept. **2007** Page(s):13 – 16, IEEE Xplore
19. Surducan, E.; Iancu, D.S.; Surducan, V.; Stanley, S , Multi-band antennas for SDR wireless handset application, *Electromagnetics in Advanced Applications*, 2007. ICEAA 2007. International Conference on Volume , Issue , 17-21 Sept. **2007** Page(s):523 – 526, IEEE Xplore
20. **Book Chapter** : "*Software Implementation of WiMAX on the Sandbridge SandBlaster Platform*", Pages: 435-446, Volume 4017/**2006**, Book Series: Lecture Notes in Computer Science; Book:**Embedded Computer Systems: Architectures, Modeling, and Simulation**, Publisher:Springer Berlin / Heidelberg; Copyright **2006**, ISBN 978-3-540-36410-8, ISSN0302-9743 , Authors: Daniel Iancu, Hua Ye, Emanoil Surducan, Murugappan Senthilvelan, John Glossner, Vasile Surducan, Vladimir Kotlyar, Andrei Iancu, Gary Nacer and Jarmo Takala
21. Emanoil Surducan , Daniel S. Iancu, Vasile Surducan, John Glossner, "MICROSTRIP COMPOSITE ANTENNA FOR MULTIPLE COMMUNICATION PROTOCOLS *International Journal of Microwave and Optical Technology (IJMOT 2006-5-30) Vol-I-No.2*, pag. 772-775, **2006**,
22. E. Surducan, V.Surducan "The microwave power distribution measurements in the plasma generator cavity (TM100)" ISSN 1553-0396 *Romanian Reports in Physics*, Vol.51, Nr.7-8-9 (1999)

