

## PERSONAL INFORMATION

## Alexandra Raluca Nicoloiu (Stefanescu)

 Bucharest (Romania)

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## WORK EXPERIENCE

05/2011 - present

**Senior Researcher**

IMT Bucharest

32B (126A) Erou Iancu Nicolae, 077190 Bucharest (Romania)

[www.imt.ro](http://www.imt.ro)

- Main responsibilities: development of acoustic based devices and sensors on WBG semiconductors, electromagnetic simulations, masks design for RF - MEMS structures, characterization
- **Participation to international projects:** H2020 FET CHIRON (2018 - 2022), H2020 FET IQubits (2019 - 2022), ESA - Microwave filters based on GaN/Si SAW resonators, operating at frequencies above 5 GHz (2016 – 2018); ESA - 0-level encapsulation of reliable MEMS switch structures for RF applications (2014 – 2016); FP7 SMARTPOWER (2011 – 2015); ENIAC MERCURE (2010 -2013); Bilateral project with South Africa – FERAMI (2008 – 2011)
- **Coordinator of national projects:** PNIII PED - Dual pressure and temperature sensors based on GaN membrane supported Surface Acoustic Wave (SAW) devices (dualSAW) (2020 – 2022); PNII – Human resources: Applications of substrate integrated waveguide structures for measuring the permittivity of dielectric materials in microwave domain (SIWcell) (2015 - 2017);
- **Partner team leader** of the national project: Advanced Tools and Methodologies for the Multiphysics Modelling and Simulation of RF MEMS Switches (ToMeMS) (2012 - 2016); Partner team leader of the Romanian – Belgium cooperation: Evolutionary computation and high performance computing for automatic optimization and design of microelectromechanical systems (2017 - 2018)
- **Participation to national projects:** PNIII SupraGaN (2017 - 2019), PNIII COTFSIW (2017 – 2018); PNII WALES (2015 - 2017); PNII SETSAL (2014 - 2017); IDEAS Project: Novel technologies based on micromachining and nano-processing of GaN/Si, for advanced microwave and photonic devices (2011 - 2016); PN II GIGASABAR (2008 – 2011); POSDRU Project (01.07.2010 – 31.12.2012): Design and modeling of acoustic devices SAW and FBAR, technological development of SAW resonators and experimental characterization of UV photodetectors

**Business or sector** Research

10/2009 – 05/2011

**Postdoc Researcher (in the frame of FP7 REGPOT – MIMOMEMS)**

IMT Bucharest

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- - modeling film bulk acoustic resonators on submicron GaN membranes
- - masks design for RF - MEMS structures; layout design for W band circuits for LTCC technology
- - measurements photodetectors

**Business or sector** Research

10/2006 -10/2009

**Research assistant/Phd. student**

POLITEHNICA University of Bucharest, Computer Aided Electrical Engineering Center (CIEAC)

313 Splaiul Independentei, 060042 Bucharest (ROMANIA)

[www.lmn.pub.ro/~alexar](http://www.lmn.pub.ro/~alexar)

- Participation to international projects: FP6 CHAMELEON-RF, FP6 COMSON
- Participation to national projects: nEDA; STAR
- Teaching and tutoring experience: Numerical methods (laboratory – 2nd Year Students); Computer Aided Electromagnetic Devices Modeling (Project – 5th Year Students)

Business or sector Research & Education

EDUCATION AND TRAINING

10/2006 - 12/2009

**Phd Electrical Engineering**

POLITEHNICA University of Bucharest

290 Splaiul Independentei, Bucharest (Romania)

- **Phd Thesis:** "Parametric Models for Interconnects from Analogue High Frequency ICs" (in Romanian)

10/2001 - 09/2006

**Engineer**

Electrical Engineering, Computer Aided Electrical Engineering

POLITEHNICA University of Bucharest

290 Splaiul Independentei, Bucharest (Romania)

- **Final Project:** Recursive Identification of C.A.R. Models from Irregularly Sampled Signals at Ecole Supérieur d'Electricite (SUPELEC), France

PERSONAL SKILLS

Mother tongue(s) Romanian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
	Replace with name of language certificate. Enter level if known.				
French	B1	B1	A1	A1	B1
	Replace with name of language certificate. Enter level if known.				

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user  
[Common European Framework of Reference for Languages](#)

Communication skills

**Good ability to adapt to multicultural environments, gained through my experience abroad**

- Stage at Universidad Autonoma Barcelona, Telecommunications and Systems Engineering (ETSE - Escola Tècnica Superior d'Enginyeria), (1 month, POSDRU scholarship, 2012).
- Bilateral Agreement South Africa – Romania, University of Pretoria, Department of Electrical, Electronic & Computer Engineering (3 weeks, September 2011)
- Bilateral Agreement South Africa – Romania, University of Pretoria, Department of Electrical, Electronic & Computer Engineering (6 weeks, 2010)
- Technische Universiteit Eindhoven, Netherlands, Mathematics and Computer Science Department (3 months, FP6 COMSON, 2008)
- Università degli Studi di Catania, Catania, Italy, Department of mathematics and Computer Science (1 months, FP6 COMSON, 2007)
- Final Project stage, Ecole Supérieur d'Electricite (SUPELEC), Gif-sur-Yvette, France, Département Signaux & Systèmes Électroniques (3 months, SUPELEC fellowship, 2006)

Job-related skills

- On-wafer characterization VNA (Vector Network Analyzer 37397D from Anritsu with set-up PM5 on wafer from Suss Microtec)
- I-V (intensity – voltage) measurements, 4200 SCS/C/Keithley, EP6/ Suss MicroTec

## Digital skills

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

Levels: Basic user - Independent user - Proficient user

[Digital competences - Self-assessment grid](#)

- Good command of simulation and design application: COMSOL, CST, AWR, Origin, Matlab
- Good command of different applications: Latex, Microwave Office, AutoCAD, CleWin

## ADDITIONAL INFORMATION

Publications  
Presentations  
Projects  
Conferences  
Seminars  
Honours and awards  
Memberships  
References  
Citations  
Courses  
Certifications

**Awards:**

- **Gheorghe Cartianu prize** of the Romanian Academy (in group) for the work "**Microwave surface acoustic wave resonators working as high sensitive temperature sensors**", 2016
- Distinguished Phd student (sponsored by Nokia), SCEE2008 conference, Helsinki, Finland, 2008

**Presentations:**

- **Chief Delegate of Romania** to the 20th World Micromachine Summit ([www.mms2014.org](http://www.mms2014.org)) and 21<sup>st</sup> World Micromachine Summit ([www.mms2015.org](http://www.mms2015.org)) where she presented an overview of the current activities in Romania related to micro-nanotechnology Research & Development
- Presentation – seminar: **FEM Models for GaN Based Surface Acoustic Wave Structures** at Center for Wireless Integrated MicroSensing and Systems (WIMS2), University of Michigan, Ann Arbor, 2<sup>nd</sup> of June 2016

**Courses, Trainings:**

- COMSOL Multiphysics Intensive Training, Gamax Laboratory Solutions Ltd., Oct. 2015;
- STIMESI MEMS Training Course Program, MEMS Design and Prototyping, Bucharest, May 2012;
- EuroTraining Awareness Course, Nanotechnology for Electronics, Bucharest, Romania, Nov. 2009.

**Reviewer for:** Sensors Journal, DTIP conference, CAS conference

## ANNEX – SELECTED LIST OF PAPERS

**Journal papers (ISI):**

1. **A. Nicoloiu**, G.E. Stan, C. Nastase, G. Boldeiu, C. Besleaga, A. Dinescu, A. Müller, The Behavior of Gold Metallized AlN/Si- and AlN/Glass-Based SAW Structures as Temperature Sensors, IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, vol. 68, no. 5, pp. 1938-1948, (May 2021)
2. M. Geilen, F. Kohl, **A. Nicoloiu**, A. Müller, B. Hillebrands, P. Pirro, Interference of co-propagating Rayleigh and Sezawa waves observed with micro-focused Brillouin light scattering spectroscopy, Appl. Phys. Lett. 117, 213501 (2020)
3. S. Lup, G. Ciuprina, D. Ioan, A. Duca, **A. Nicoloiu**, D. Vasilache, "Physics Aware Macromodels for MEMS Switches", COMPEL: The International Journal for Computation and Mathematics in Electrical and Electronic Engineering, 39 (2), 497–509, (2020)
4. A. Müller, G. Konstantinidis, I. Giangu, G. Adam, **A. Stefanescu**, A. Stavriniadis, G. Stavriniadis, A. Kostopoulos, G. Boldeiu, A. Dinescu "GaN membrane supported SAW pressure sensors with embedded temperature sensing capability" IEEE Sensor Journal, vol. 17, no. 22, pp. 7383 – 7393, (2017)
5. **A. Stefanescu**, A. Muller, I. Giangu, A. Dinescu, G. Konstantinidis, "Influence of Au-Based Metallization on the Phase Velocity of GaN on Si Surface Acoustic Wave Resonators", IEEE Electron Device Letters, Vol. 37, no. 3, pp. 321 – 324, (2016)
6. A. Müller, **A. Stefanescu**, G. Konstantinidis, "Response to comments on "GaN/Si based single SAW resonator temperature sensor operating in the GHz frequency range", Sensors and Actuators A: Physical, vol 247, pp. 162–163, (2016)
7. A. Muller, I. Giangu, A. Stavriniadis, **A. Stefanescu**, G. Stavriniadis, A. Dinescu, G. Konstantinidis, "Sezawa Propagation Mode in GaN on Si Surface Acoustic Wave Type Temperature Sensor Structures Operating at GHz Frequencies", IEEE Electron Device Letters, Vol. 36, no. 12, pp. 1299 – 1302, (2015)
8. A Müller, G. Konstantinidis, V. Buiculescu, A. Dinescu, A. Stavriniadis, **A. Stefanescu**, G. Stavriniadis, I. Giangu, A. Cismaru, A. Modoveanu, "GaN/Si based single SAW resonator temperature sensor operating in the GHz frequency range", Sensors and Actuators A: Physical, Vol. 209, pp. 115–123, (2014)
9. A Cismaru, A Muller, G Konstantinidis, F Comanescu, M Purica, **A. Stefanescu**, A Stavriniadis, A Dinescu, A Moldoveanu, "Residual stress distribution and deflection analysis of very thin GaN membrane supported devices", Journal of Micromechanics and Microengineering, Vol. 23, Issue 1, 015010, (2013)
10. V. Buiculescu, **A. Stefanescu**, "Choke flange-like structure for substrate integrated waveguide components cascading", Electronics

- Letters, Vol. 48, no. 2, pp. 1349-1350, (2012)
11. A. Muller, G. Konstantinidis, M. Androulidaki, A. Dinescu, **A. Stefanescu**, A. Cismaru, D. Neculoiu, E. Pavelescu, A. Stavrinidis, "Front and backside-illuminated GaN/Si based metal-semiconductor-metal ultraviolet photodetectors manufactured using micromachining and nano-lithographic technologies", *Thin Solid Films*, Vol. 520, Issue 6, pp. 2158-2161, (2012)
  12. **A. Stefanescu**, D. Neculoiu, A. Muller, A. Dinescu, G. Konstantinidis, A. Stavrinidis, "Analysis of GaN Based SAW Resonators including FEM Modeling", *Romanian Journal of Information Science and Technology*, Vol. 41, Issue 4, pp. 334-345, (2011)
  13. A. Muller, D. Neculoiu, G. Konstantinidis, G. Deligeorgis, A. Dinescu, A. Stavrinidis, A. Cismaru, M. Dragoman, **A. Stefanescu**, "SAW Devices Manufactured on GaN/Si for Frequencies Beyond 5 GHz", *IEEE Electron Devices Letters*, Vol. 31, no. 12, pp. 1398-1400, (2010)
  14. **A. Stefanescu**, G. Ciuprina, D. Ioan, "Variability Models for Transmission Lines", *Revue Roumaine des Sciences Techniques – Serie Electrotechnique et Energetique*, Vol. 55 (4), pp. 394-404, (2010)

#### ISI Proceedings:

1. **A. Nicoloiu**, F. Ciubotaru, C. Nastase, A. Dinescu, S. Iordanescu, H. Ahmad, P. Pirro, C. Adelman, A. Müller "Room and cryogenic temperature behaviour of magnetic sensors based on GaN/Si single SAW resonators" - Proceedings of TRANSDUCERS 2019 - Eurosensors XXXIII Conference 2019, Berlin, 23-27 June 2019, pp. 2037-2040.
2. **A. Nicoloiu**, A. Muller, I. Zdru, D. Vasilache, G. Stan, C. Nastase, V. Dumitru, A. Dinescu, "AlN/Si based SAW resonators for very high sensitivity temperature sensors", *IEEE International Ultrasonics Symposium*, 22-25 October 2018, Kobe, Japan
3. A. Müller, **A. Nicoloiu**, A. Dinescu, A. Stavrinidis, I. Zdru, G. Konstantinidis, "The influence of metallization on resonance frequency and temperature sensitivity of GHz operating III-Nitride SAW based sensor structures", *International Microwave Symposium 2018*, 10-15 June 2018, Philadelphia, USA, session WEIF: Interactive Forum #2, pp. 938-941
4. D. Vasilache, A. Avram, **A. Stefanescu**, G. Boldeiu, S. Iordanescu and B. Bitu "0-level encapsulation using thin films deposition for RF MEMS –demonstration on RF MEMS switch structures", *APMC 6 – 9 Nov. 2018*, Japan
5. A. Müller, G. Konstantinidis, **A. Stefanescu**, I. Giangu, A. Stavrinidis, M. Pasteanu, G. Stavrinidis and A. Dinescu, "Pressure and temperature determination with micromachined GaN/Si SAW based resonators operating in the GHz frequency range" *Proceedings of 19th International Conference In Solid-State Sensors, Actuators and Microsystems (TRANSDUCERS 2017)*
6. A. Müller, A. Stavrinidis, I. Giangu, **A. Stefanescu**, G. Stavrinidis, A. Pantazis, A. Dinescu, G. Boldeiu, G. Konstantinidis, "High sensitivity, GHz operating SAW pressure sensor structures manufactured by micromachining and nano-processing of GaN/Si", *International Microwave Symposium IMS 2016*, San Francisco, May 2016
7. A. Muller, G. Konstantinidis, I. Giangu, V. Buiculescu, A. Dinescu, **A. Stefanescu**, A. Stavrinidis, G. Stavrinidis, "GaN-based SAW structures resonating within the 5.4-8.5 GHz frequency range, for high sensitivity temperature sensors" *Proceedings of Microwave Symposium (IMS), 2014 IEEE MTT-S International Conference*, 2014, pp. 1-4
8. **A. Stefanescu**, V. Buiculescu, A. Dinescu, A. Cismaru, A. Muller, G. Konstantinidis, A. Stavrinidis, G. Stavrinidis, "Modeling of SAW Resonators Fabricated on GaN/Si", *The International IEEE Conference on Microwaves, Communications, Antennas and Electronic Systems, (IEEE COMCAS)*, October 2013, Tel Aviv, Israel, electronic proceeding (unpaged)
9. **A. Stefanescu**, A. Muller, G. Konstantinidis, V. Buiculescu, A. Dinescu, A. Stavrinidis, D. Neculoiu, A. Cismaru, "SAW GaN/Si Based Resonators: Modeling and Experimental Validation", *Proceedings International Semiconductor Conference (CAS 2012)*, Sinaia, Oct. 2012, vol. 1, pp. 193 – 196

#### Chapters in books:

1. A. Müller, **A. Nicoloiu**, „De la electronica cu semiconductor la quantum computing”, *Revista Academica*, Nr. 9-10, pp. 62 – 68, Septembrie-Octombrie 2020
2. A. Müller, **A. Nicoloiu (Stefanescu)**, I. Zdru (Giangu), G. Konstantinidis, A. Stavrinidis, G. Stavrinidis, A. Dinescu, "Review on recent developments of GaN/Si Surface Acoustic Wave based sensors", *Advances in micro- and nanoelectronics*, Series in Micro and Nanoengineering, Publishing House of the Romanian Academy, Bucharest, pp. 332 – 356, 2018
3. G. Ciuprina, J. F. Villena, D. Ioan, Z. Ilievski, S. Kula, E. JanW. ter Maten, K. Mohaghegh, R. Pulch, W.H.A. Schilders, L. M. Silveira, **A. Stefanescu**, and M. Striebel, "Parameterized Model Order Reduction", *Mathematics in Industry*, 21, Coupled Multiscale Simulation and Optimization in Nanoelectronics, Springer, 2015, pp. 267 - 360
4. **A. Stefanescu**, D. Neculoiu, A.C. Bunea, "Design and Modelling of Membrane Supported FBAR Filter", In: *Novel RF MEMS Technologies*, Series in Micro and Nanoengineering, Publishing House of the Romanian Academy, Bucharest, 20, 2012, pp. 291-300.