



## Europass Curriculum Vitae

### Personal information

First name / Surname **Andreea Bianca Gherghe (Șerban)**  
Address  
Telephone  
E-mail andreea.serban@eli-np.ro  
Nationality Romanian  
Date of Birth

### Work experience

**Nov 2018-Present** **Doctoral research assistant**  
Extreme Light Infrastructure - Nuclear Physics (ELI-NP), Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering (IFIN-HH), Str. Reactorului no.30, P.O.BOX MG-6, Bucharest - Magurele, ROMANIA,

Main activities and responsibilities Film deposition and investigation regarding chemical composition, distribution of phases and elements, preferred orientation of crystals, morphological evaluation - shape, size, texture, roughness and testing them for positron moderation. Optimization and manufacture of the positron moderation device based on a magnetic bottle: assembling of the experimental setup, measurements on the magnetic field with the chamber assembled, calibration and linearity of the detectors test, building of the electron bombardment chamber for annealing and annealing of the W moderator, identification of the problems that arise during the implementation, commissioning and running the experiment, measurements and results analysis, the elaborated study of the experimental results

**Feb 2018-Oct 2018** **Doctoral research assistant**  
Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering, (IFIN-HH), Str. Reactorului no.30, P.O.BOX MG-6, Bucharest - Magurele, ROMANIA

Main activities and responsibilities Film deposition and investigation regarding chemical composition, distribution of phases and elements, preferred orientation of crystals, morphological evaluation - shape, size, texture, roughness and testing them for positron moderation.

**Dec 2016-Feb 2018** **Physicist**  
Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering, ELI-NP, RA4, (IFIN-HH), Str. Reactorului no.30, P.O.BOX MG-6, Bucharest - Magurele, ROMANIA

Main activities and responsibilities GaN sample preparation and interpretation

**Oct 2014- Jun 2015**

**Practice**

National Institute of Materials Physics, Str Atomistilor  
nr. 105 bis, 077125, Magurele, Romania

Main activities and responsibilities

Preparation of a sample (Pt/Ge(001)) using Molecular Beam Epitaxy;  
Data acquisition and interpretation using X-ray Photoelectron Spectroscopy;  
Characterization of the sample using Low Energy Electron Diffraction.

**Oct 2013-Dec 2013**

**Technician**

National Institute of Materials Physics, Str Atomistilor  
nr. 105 bis, 077125, Magurele, Romania

Main activities and responsibilities

Preparation of a sample (Cu/Ge(001)) using Molecular Beam Epitaxy;  
Data acquisition and interpretation using X-ray Photoelectron Spectroscopy;  
Characterization of the sample using Low Energy Electron Diffraction.

**Education**

**2017-present**

**PhD Student**

New materials for positron re-moderation

University Politehnica of Bucharest/School in Engineering and Applications of  
Lasers and Accelerators

**2015-2017**

**Master's degree**

Physics of advanced materials and nanostructures

University of Bucharest / Faculty of Physics

**2012-2015**

**Bachelor's degree**

Physics (in English)

University of Bucharest / Faculty of Physics

**2008-2012**

**High School**

Computer Aided Design (CAD) Technician

Grup Scolar Industrial "Dragomir Hurmuzescu" - Medgidia

**Personal skills and competences**

Mother tongue

**Romanian**

Other (s) languages

	Understanding		Speaking		Writing
	Listening	Reading	Spoken interaction	Spoken production	
<b>English</b>	C2	C2	C1	C1	C1
<b>French</b>	B2	B2	A2	A2	B1

Projects

Mobility project - UEFISCDI, no. PN-III-P1-1.1-MC2018-2112, date 24.05.2018 -  
Application at X-ray SmartLab Diffractometer training, held between June, 2018 in  
Neu-Isenburg, Germany;

Conferences/Schools	<p><b>A.B. Serban, et al.</b>, “Optimization and manufacture of the positron moderation device based on a magnetic bottle”, ELI-NP Autumn School, <b>2022</b>, Romania</p> <p>L.A. Dinu, <b>A.B. Serban et al.</b>, „Area-selective wet chemical etching of ferroelectric zirconium-doped hafnium oxide ultra-thin films for high-frequency electronics” - International Conference on Physics of Advanced Materials (ICPAM-14, <b>2022</b>), Croatia</p> <p><b>A.B. Serban, et al.</b>, “On the synthesis of highly-oriented GaN thin films by RF-magnetron sputtering”, Young Scientist Days, <b>2021</b>, Romania</p> <p><b>A.B. Serban, et al.</b>, “On the synthesis of highly-oriented GaN thin films by RF-magnetron sputtering”, ELI-NP Autumn School, <b>2020</b>, Romania</p> <p>V. L. Ene, <b>A.B. Serban et al.</b>, “Searching for a new positron moderator: RF-magnetron sputtered nanostructured thin films” SICHEM 2020 International Symposium of Chemical Engineering and Materials, Faculty of Applied Chemistry and Materials Science, <b>2020</b>, Bucharest, Romania</p> <p>A. Ionescu <b>A.B. Serban et al.</b>, “Targets for laser-driven mixed heavy ion beams at ELI-NP, 4th Targetry for High Repetition Rate Laser-driven Sources Workshop, Jun <b>2019</b>, Milan, Italy</p> <p>V. L. Ene, <b>A.B. Serban et al.</b>, “Microscopy studies on magnetron sputtered thin films with preferred orientation for positron moderation”, 3rd Conference of the Romanian Electron Microscopy Society, Oct. <b>2019</b>, Poiana Braşov, Romania</p> <p>V. L. Ene, <b>A.B. Serban et al.</b>, “Magnetron sputtering thin films with preferred orientation for positron moderation, XVI ECerS Conference, Jun. <b>2019</b>, Torino, Italy</p> <p><b>A.B. Serban et al.</b>, “New materials (e.g., GaN films) for positron re-moderation”, “ELI-NP Young Researcher's Days”, <b>2018</b>, Romania</p> <p><b>A.B. Serban</b>, “X-ray diffraction”, SDIALA PhD Educational Session, <b>2018</b>, Romania</p> <p><b>A.B. Serban</b>, “New materials (e.g., GaN films) for positron re-moderation” SDIALA PhD Educational Session, <b>2018</b>, Romania</p> <p><b>A.B. Serban, et al.</b>, “GaN films for positron re-moderation: microstructure and growth mechanism”, „ELI-NP Young researchers Day competition, second edition”, <b>2017</b>, Romania</p> <p><b>A.B. Serban, et al.</b>, “Band bending at surfaces and interfaces: Metal-semiconductor contact”, International Conference of Physics Students (ICPS): 7-14 August 2017 Torino, Italy</p> <p><b>A.B. Serban, et al.</b>, “Band bending at surfaces and interfaces: Metal-semiconductor contact”, Transparent Conductive Materials 6th edition, 2016, Chania, Greece</p> <p>ELBYSIER (“Electronics Beyond Silicon Era”) Intensive Program in Organic Electronics 18 -22 Aprilie 2016 (Sinaia)</p> <p>ELBYSIER (“Electronics Beyond Silicon Era”) Intensive Program in Organic Electronics 7-14 Octombrie 2016 (Chania, Greece)</p>
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- Publications Chircov, Cristina, Maria Andreea Mincă, **Andreea Bianca Serban**, Alexandra Cătălina Bîrcă, Georgiana Dolete, Vladimir Lucian Ene, Ecaterina Andronescu, and Alina Maria Holban. 2023. "Zinc/Cerium-Substituted Magnetite Nanoparticles for Biomedical Applications." *International Journal of Molecular Sciences* 2023, Vol. 24, Page 6249 24 (7): 6249. <https://doi.org/10.3390/IJMS24076249>.
- Dinu Gugoasa, Livia Alexandra, Florina Pogacean, Sevinc Kurbanoglu, Lucian-Barbu Tudoran, **Andreea Bianca Serban**, Irina Kacso, and Stela Pruneanu. 2021. "Graphene-Gold Nanoparticles Nanozyme-Based Electrochemical Sensor with Enhanced Laccase-Like Activity for Determination of Phenolic Substrates." *Journal of The Electrochemical Society* 168 (6): 067523. <https://doi.org/10.1149/1945-7111/ac0c32>.
- Dinu, Livia Alexandra, Sevinc Kurbanoglu, Cosmin Romanitan, Stela Pruneanu, **Andreea Bianca Serban**, Marius C. Stoian, Cristina Pachiu, and Gabriel Craciun. 2022. "Electrodeposited Copper Nanocubes on Multi-Layer Graphene: A Novel Nanozyme for Ultrasensitive Dopamine Detection from Biological Samples." *Applied Surface Science* 604 (December): 154392. <https://doi.org/10.1016/J.APSUSC.2022.154392>.
- Djourellov, N., and **A. B. Serban**. 2021. "Optimization of a Device for Positron Moderation Based on a Magnetic Bottle." *Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment* 1014 (October): 165699. <https://doi.org/10.1016/j.nima.2021.165699>.
- Ene, Vladimir Lucian, Doru Dinescu, Nikolay Djourellov, Iulia Zai, Bogdan Stefan Vasile, **Andreea Bianca Serban**, Victor Leca, and Ecaterina Andronescu. 2020. "Defect Structure Determination of GaN Films in GaN/AlN/Si Heterostructures by HR-TEM, XRD, and Slow Positrons Experiments." *Nanomaterials* 10 (2). <https://doi.org/10.3390/nano10020197>.
- Ene, Vladimir Lucian, Doru Dinescu, Iulia Zai, Nikolay Djourellov, Bogdan Stefan Vasile, **Andreea Bianca Serban**, Victor Leca, and Ecaterina Andronescu. 2019. "Study of Edge and Screw Dislocation Density in GaN/Al<sub>2</sub>O<sub>3</sub> Heterostructure." *Materials* 12 (24): 4205. <https://doi.org/10.3390/ma12244205>.
- Savin, Mihaela, Carmen Marinela Mihailescu, Viorel Avramescu, Silviu Dinulescu, Bogdan Firtat, Gabriel Craciun, Costin Brasoveanu, Cristina Pachiu, Cosmin Romanitan, **Andreea-Bianca Serban**, Alina Catrinel Ion, and Carmen Moldovan. 2021. "A New Hybrid Sensitive PANI/SWCNT/Ferrocene-Based Layer for a Wearable CO Sensor." *Sensors* 2021, Vol. 21, Page 1801 21 (5): 1801. <https://doi.org/10.3390/S21051801>.
- Serban, Andreea Bianca**, Vladimir Lucian Ene, Doru Dinescu, Iulia Zai, Nikolay Djourellov, Bogdan Stefan Vasile, and Victor Leca. 2021. "Studies of Defect Structure in Epitaxial AlN/GaN Films Grown on (111) 3C-SiC." *Nanomaterials* 2021, Vol. 11, Page 1299 11 (5): 1299. <https://doi.org/10.3390/NANO11051299>.
- Șerban, Andreea Bianca**, Vladimir Lucian Ene, Cristina Constanța Gheorghiu, Dimiter Balabanski, Ecaterina Andronescu, and Victor Leca. 2019. "RF Magnetron Sputtering of Gallium Nitride (GaN) on Sapphire Substrate." *UPB Scientific Bulletin, Series B: Chemistry and Materials Science* 81 (3): 11–18.
- Söderström, P. A., E. Açıksöz, D. L. Balabanski, F. Camera, L. Capponi, Gh Ciocan, M. Cuciuc, **Andreea-Bianca Serban**, et al. 2022. "ELIGANT-GN — ELI Gamma Above Neutron Threshold: The Gamma-Neutron Setup." *Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment* 1027 (March): 166171. <https://doi.org/10.1016/j.nima.2021.166171>.
- Söderström, P. A., D. L. Balabanski, R. S. Ban, Gh Ciocan, M. Cuciuc, A. Dhal, V. Fugaru, **Andreea-Bianca Serban**, et al. 2023. "Design and Construction of a 9 MeV  $\gamma$ -Ray Source Based on Capture of Moderated Plutonium–Beryllium Neutrons in Nickel." *Applied Radiation and Isotopes* 191 (January): 110559.

<https://doi.org/10.1016/J.APRADISO.2022.110559>.

Tănase, Liviu Cristian, Amelia Elena Bocîrnea, **Andreea Bianca Şerban**, Laura Elena Abramiuc, Ioana Cristina Bucur, George Adrian Lungu, Ruxandra Maria Costescu, and Cristian Mihail Teodorescu. 2016. "Growth Mechanisms and Band Bending in Cu and Pt on Ge(001) Investigated by LEED and Photoelectron Spectroscopy." *Surface Science* 653 (November): 97–106. <https://doi.org/10.1016/j.susc.2016.06.006>.

Skills	Independent user: Atomic Force Microscope-AFM, Scanning Electron Microscope-SEM, X-Ray Diffraction, X-ray Photoelectron Spectroscopy-XPS, Energy-dispersive X-ray Spectroscopy-EDS, and Low Energy Electron Diffraction-LEED Microsoft Office-certificate ECDL, Origin, IGOR, Mathematica, Matlab, etc. C (Beginner), Fortran (Beginner)
Personal skills	Analytical thinking, problem solving, teamwork, multitasking, communication skills, detail oriented, dynamic, competitive