

Europass Curriculum Vitae



Personal information

First name(s) / Maiden name Surname(s) **Simona Cîntă Pînzaru**
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Nationality Romanian
Gender F

Work experience

Professor of Spectroscopy and Lasers, Optoelectronics, Nanomedicine and Molecular Diagnostic, Applied Raman and IR spectroscopy in Biomedical Research; Academic research;

Dates Occupation or position held

Feb. 2020 -present: Professor, Biomolecular Physics Dept., Babes-Bolyai University (BBU), Cluj-Napoca, Romania; Research trajectory;
 Lab Head: Raman-AFM Lab of the Babes-Bolyai University;
<http://www.phys.ubbcluj.ro/raman/group.htm>
 Lab Head: RDI Lab of Applied Raman Spectroscopy and Services to the Community
<http://icdisna.institute.ubbcluj.ro/laboratoare.html>
 Responsible for the Raman-AFM Lab in the VIRTUAL LABS framework BBU, the Research Units of Excellence approved by the BBU Scientific Council and the Strategic Research Infrastructure, BBU
<https://cercetare.ubbcluj.ro/en/research-at-ubb/research-infrastructure/>
 Member in the Faculty of Physics Council, BBU;

2003-2020: Associate Professor, Biomolecular Physics Dept., BBU, Cluj-Napoca, Romania; Research trajectory.

2014 (June)- 2016 (May): Senior researcher, Fellow of NEWFELPRO Programme MSE/ FP7-Marie-Curie, for Experienced Researchers in Croatia.

2005 (Oct.-Dec.) Visiting scientist, Bayerische Julius-Maximilians-Universität Würzburg, Germany.

2004 (Sept.-Dec) Visiting scientist, Bayerische Julius-Maximilians-Universität Würzburg, Germany.

2003 (Sept-Dec.) Visiting scientist, Bayerische Julius-Maximilians-Universität Würzburg, Germany.

1998-2003: Lecturer, Molecular Spectroscopy Dept., Babes-Bolyai University

1996 Assoc. research assistant, Bayerische Julius-Maximilians-Universität Würzburg, Germany,

1996: Soros Fellowship, Assoc. research assistant, Bayerische Julius-Maximilians-Universität Würzburg, Germany.

1995-1998: Assistant professor, Optics and Spectroscopy Dept., BBU, permanent position gained in competition.

1992-1995: Associated assistant, Optical Spectroscopy Lab., Faculty of Physics, BBU;

1988-1995: Professor of physics in high school, position gained in national competition;

Name and address of employer Babes-Bolyai University, Faculty of Physics, Biomolecular Physics Department, Cluj-Napoca, RO 400084

<p>Education and training</p> <p>Dates</p>	<p>1988: Graduated, Faculty of Physics, Babes-Bolyai University, Cluj-Napoca.</p> <p>1988 Sept-1991 May: Physics teaching stage completed and certified.</p> <p>1995-1998: Doctoral Program, Babes-Bolyai University.</p> <p>1996 (July): Soros fellow, PhD student, University of Würzburg, Germany; August-Dec.:DFG-fellowship, research assistant, University of Würzburg, Germany</p> <p>1998: Doctoral Thesis: "Raman and SERS spectroscopic studies of the metal-adsorbed complex for the biological interest molecules"</p> <p>1999, 2002, Erasmus-Socrates Fellowship, Post Doc at University of Würzburg, Germany.</p> <p>1996 (Sept.-Dec)- Research assistant, PhD student at <i>Bayerische Julius Maximilians Universitaet Würzburg</i>;</p> <p>2011: Professional Education: in (RO) <i>Educația și formarea profesională în sprijinul creșterii economice și dezvoltării societății bazate pe cunoaștere „Calitate în învățământul superior”, proiect „Întărirea învățământului superior orientat spre competențe” (POSDRU/86/1.2/S/60281). 2025</i> (June) <i>Geneva Summer School- Microplastics: From Environmental Impact to Policy, Innovation, and Public Awareness</i></p>
<p>Title of qualification awarded</p> <p>Dates</p>	<p><i>Habilitation in Physics (Minister of National Education Order Nr. 3786 from 04.06.2018; Doctor in Physics (1998) of Babes-Bolyai University, Cluj-Napoca, Romania</i></p> <p><i>Licence in Physics (1988) Babes-Bolyai University, Cluj-Napoca, Romania</i></p> <p><i>Operator in Nuclear Techniques and Technologies (High school qualification), 1984.</i></p>
<p>Principal subjects/occupational skills covered</p>	<p>Scientific research & Academic activity</p> <p>Courses: Spectroscopy and Lasers, Optoelectronics, Nanomedicine and Molecular Diagnostic, Optics, Vibrational spectroscopy methods –Biomedical Applications; Advanced methods in Molecular physics</p> <p>Research: Applied spectroscopy; Raman technology; interface between living organisms and nanoparticles; SERS, Applied Raman spectroscopy techniques; Biomolecular physics, Raman techniques for nanomedicine, personalized diagnostic, pharmaceuticals, food control, molecular environmental research; Biophotonics; Bioeconomy and Circular Economy; Materials characterization.</p> <p>Plastisphere and plastic initiatives. Micro- nanoplastic detection and quantification.</p> <p>Pioneering SERS Applications: Pioneer work in developing and applying SERS techniques in complex matrix such as tissue; Applied Raman and SERS for sensitive analyses. Research includes:</p> <p><i>Biomedical and Pharmaceutical Applications:</i> Utilizing SERS to track molecular changes in tissues for early medical diagnosis, particularly for melanoma tracking using functionalized silver and gold nanoparticles.</p> <p><i>Drug Analysis:</i> Identifying and characterizing various pharmaceuticals, including the 5-fluorouracil anticarcinogenic drug and HIV inhibitors derived from birch bark extracts, using Raman and SERS techniques.</p> <p><i>Food Science:</i> Developing methods for food analysis and quality control, such as using SERS for wine discrimination and detecting pesticides (e.g., thiabendazole) on fruits.</p> <p>Key initiatives and projects include:</p> <p>Environmental Research: involved in projects focusing on developing advanced analytical methods, such as surface-enhanced Raman scattering (SERS) spectroscopy combined with resonance Raman, to detect and monitor the growing presence of nano plastics in aquatic and terrestrial environments. This research directly addresses a global environmental concern with significant societal impact.</p> <p>Biomedical Applications: A major focus of her applied research is the development of novel, cost-effective drug carriers using sustainable and biogenic materials, such as wasted blue crab shells. This work explores nanomedicine for applications like cancer therapy, using an eco-friendly approach to waste valorisation.</p> <p>Community Engagement and Workshops: Prof. Pinzaru coordinates and participates in workshops aimed at knowledge sharing and collaboration. For example, she was the project director for a workshop on the "Blue Bioeconomy Approach to Marine Biomass Waste," bringing together researchers and companies to discuss innovative ideas and translational sciences in this field.</p> <p>Science Communication: Constant input in presenting research results and knowledge to a broader audience through publications and other outreach activities coordinated by centers for science education, science for society and training. These efforts contribute to improving public understanding of science and its applications in daily life.</p>

The research provided scientific foundation needed to implement effective monitoring programs and make informed decisions regarding the preservation and knowledge-based management and exploitation of the local salt lakes within balneary resorts.

Evaluator: Expert evaluator, European Commission, Program H2020 (expert EX2013D134729, Contract nr. CT-EX2013D134729-101, Contract nr. CT-EX2013D134729-103)
2019 -Evaluation of commercialization projects of the research results “Support for Improvement of Technology Transfer System” of the specific support objective “To increase investments of private sector in R&D” of the operational programme “Growth and Employment”; Latvia.
Expert Evaluator national research grants; Institutional Grants Competition for Young Researchers, (GTC-UBB);

Mother tongue(s)

Romanian

Other language(s)

English, German, Croatian, French

Self-assessment

European level (*)

English

German

French

Croatian

Understanding		Speaking		Writing			
Listening		Reading		Spoken interaction		Spoken production	
	C2		C2		C2		C2
	B2		C1		B2		C1
	B2		C2		B1		B1
	B2		B2		B1		B2

(*) [Common European Framework of Reference for Languages](#)

Projects management competences

2025-2029: Director-Ro- **IMPACT**: Implications of Nano/Microplastic Pollution on Aquatic Environment Health, second Swiss Contribution MAPS, No. 1Z11Z0_230154 and Nr. 7ROCH /07.2025; <https://www.unige.ch/ecotox/recherches/projets-en-cours/impact>

2019-2022: Grant Director PN-III-P2-2.1-PED-2019-4777 Acronym **BlueBioSustain**; <https://bluebiosustain.granturi.ubbcluj.ro/>

Director, Project manager (2014-2016) NEWFELPRO -Marie Curie FP7-PEOPLE-2011-COFUND program of the Ministry of Science, Education. and Sports Croatia, grant agreement no. 291823, MSE; University of Dubrovnik; Project acronym: **JadranSERS**;

Grant Director: PN_II_ID_2284/ 2008-2011;

Grant Director (1999-2002), World Bank Grant for Young Researchers BM-T 131;

Grant Director CNCSIS –AT – 2000-2002.

Member in other projects grants (CNCSIS type) teams - 2005, 2004, 2003, 2002;

-Member in COST Action BM140;

-Member in POC 2014 - 2020, ID P_40_374, Cod MySMIS: 105765, Beneficiary: BBU

Member in PN-II-PT-PCCA-2013-4-1882, 2014-2018.

Member in PC-Parteneriate Grant nr.71-122, 2007-2011

2025—2028 Member in PN-IV-P1-PCE-2023-2026, Transcriptomics and genomics unveiling molecular mercury resistance mechanisms in plants and rhizosphere fungi: advancing sustainable soil remediation;

Initiated > 8 international bilateral and institutional agreements, >10 interdepartmental agreements;

Scientific Coordinator of young researchers:

01.01.2025 – 01.06.2025: Research scholarship funded by the World Federation of Scientists Project: Developing a SERS protocol with Ag nanoparticles for identification and quantification of PET nanoplastics in environmental waters;

1 JAN 2023 – 30 JUN 2023 Doctoral Advanced Fellowship funded by Babes-Bolyai University – Project no. PFE-550-UBB Project: From macro and micro to nanoplastics identification and

Technical skills, competences, publications	<p>monitoring in environmental biota: strategies to enhance micro-Raman signal from biological samples exposed to nanoplastics; Cluj-Napoca, Romania;</p> <p>2021 – 2022 Research scholarship funded by the World Federation of Scientists Project: Sorting environmental plastics for recycling using Raman spectroscopy with portable instruments; Cluj-Napoca, Romania;</p> <p>28 SEP 2020 – 30 SEP 2021 Research scholarship funded by the Babes-Bolyai University Project: Study of the natural plastic degradation to streamline a sorting technique based on Raman technology to recycle and apply data according to the FAIR principle; Cluj-Napoca, Romania</p> <p>01.09.2020 – 30.10.2020 and 01.09.2022 – 30.06.2024 Postdoctoral research projects (PD) PN-III-P1-1.1-PD-2019-0562, Contract No.: PD 51 / 07.08.2020, Cylindrospermopsin cyanobacterial toxin adsorption on plasmonic nanoparticles, trace detection and probing its assessment in environmental waters from Transylvania, Romania and in aquatic products;</p> <p>Scientific Advisor and support in: PN-III-P1-1.1-PD-2021-0477, within PNCDI III, New composites based on carotenoid-depleted seafood shell waste with efficient environmental pollutants adsorption, Acronym <i>Shell-Pol-Ads</i>, https://shellpolads.granturi.ubbcluj.ro/</p> <p>Project for young researchers 2019/2020, Funder: Babeş-Bolyai University; Competition: Grants for Young Researchers 2019/2020, Duration: 1.6.2020 - 10.9.2022</p> <p>Blue bioeconomy approach to wasted marine biomass - an innovative fertilizer for green economy and agriculture (acronym <i>MARIFERT</i>); https://shellpolads.granturi.ubbcluj.ro/marifert.html</p> <p>Applied Raman spectroscopy; Experimental vibrational spectroscopy, Nanoparticles; SERS – Developing Raman spectroscopy applications in biomedical, environmental and conservation-restoration field ; Pure and Applied SERS (Nanomedicine; Pharmaceuticals; Food control; Environment, Cultural Heritage –assessment for conservation-restoration; Blue bioeconomy)</p> <p>Publications: more than 200 papers (130 in WoS); 6 books/book chapters and participated in more than 200 conferences; >30 contributions in proceedings; webinar (BioOptics World); >15 invited lectures; more than 40 talks and oral presentations to international conferences and meetings;</p> <p>Researcher ID: A-4543-2011; Profile URL: http://www.researcherid.com/rid/A-4543-2011</p> <p>ORCID: http://orcid.org/0000-0001-8016-4408</p> <p>Research Gate: https://www.researchgate.net/profile/Simona_Cinta_Pinzaru</p> <p>H index 28 (Scopus Author ID 6603466035), 28 (Web of Science); <i>Google Scholar H-index: 32</i>;</p> <p>Research topics: Applied spectroscopy for Nanomedicine: nanosciences for the benefit of patient. Early cancer diagnostic using optical spectroscopy techniques, including Raman and SERS, combined with complementary techniques; Marine biotoxins: detection and molecular recognition; Food control, aquaculture and seafood characterization and monitoring, using ultrasensitive Raman techniques; Pharmaceuticals; Waste materials & blue bioeconomy.</p> <p>Professional Membership Society of Environmental Toxicology and Chemistry; European Technology Platform-Nanomedicine (ETPN); International Association of Physical Chemists (IAPC), European Physical Society (EPS); Member in the Editorial Board of the Journal of Spectroscopy, Current Smart Materials; Member: American Chemical Society</p> <p>Peer Reviewer in more than 20 ISI journals</p> <p>ERASMUS Coordinator, Faculty of Physics, BBU (2015-present)</p> <p>Other academic activity: member in admission panels, evaluation of doctoral theses (12) master dissertations, licence theses.</p>
	Prizes /Awards
Computer skills and competences	<p>User; Microsoft office, specific scientific software, spectral data analysis;</p>

Artistic, social skills and competences	Photography, holography, cultural heritage, Dalmatian tradition and music; Very good communication skills, teaming, public relations skills, media communication;
Additional information	Latest promotion in media: Scientific input in national documentary (TV) "ROMÂNIA, TE IUBESC! - ROMÂNIA LA PET" (https://www.youtube.com/watch?v=DYb3MtMRwMk) Partnership high-school academia for microplastic screening.

Cluj-Napoca, 12. 03. 2026

Simona Pînzaru