



Curriculum vitae
Europass

Personal Information

Name / Surname **TRIPON Carmen**

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Professional Experience

Research Scientist II
INCDTIM Cluj-Napoca
Molecular and Biomolecular
Physics Department

2004-present:

- (a) photothermal phenomena investigations using photopyroelectric (PPE) and photothermoelectric (PTE) techniques;
- (b) investigation of structural changes in DNA molecules using various vibrational spectroscopy techniques (FTIR and Raman);
- (c) solid-state Nuclear Magnetic Resonance spectroscopy (ss-NMR) for structural and dynamical study of biological and pharmaceutical compounds;

Principal Investigator

*2011-2013: National Post-Doctoral grant PN-II PD_53: **Modern approaches for solid form screening of active pharmaceutical ingredients and structural characterization on powders**, financed by the Romanian National Authority for Scientific Research (CNCS-UEFISCDI), project number PN-II-RU-PD-2011-3-0021. Total Amount 300.000 lei. Web page : <http://www.itim-cj.ro/PNCIDI/ru53/>*

Education

2002-2009
PhD student (Babes-Bolyai
University, Cluj-Napoca,
Faculty of Physics)

PhD in Physics - Summa cum Laude (Oct. 23, 2009), with the thesis entitled "New Techniques in Solid-State Nuclear Magnetic Resonance: Methodological Developments and Applications"

2001-2002
Master of Science (Babes-
Bolyai University, Cluj-
Napoca, Faculty of Physics)

Master of science in physics of oxide materials

1996-2001
Student (Babes-Bolyai
University, Cluj-Napoca,
Faculty of Physics)

Student at Faculty of Physics, Technological Physics section, Engineer in Physics license

International Specializations

Professional Accomplishments

- Visiting scientist 2019 at Tor Vergata University, Rome (Industrial Engineering Department, Photothermal phenomena laboratory), financial support through the CRESC-ITIM project (contract no. 32PFE/19.10.2018), project manager dr. Claudiu Filip
- 2008-2011 International Specialization (University of Warwick, UK) During this period, I have been completed 3 stages as visiting scientist at the Solid-State NMR group as part of a *Royal Society International Joint Project* entitled “*¹H Solid-State NMR: using algebraic insight and simulation to enhance experiment*” (code 2007/R4)

Professional Accomplishments

- 2019 Oral presentation at International Conference Processes in Isotopes and Molecules PIM-2019, entitled: “*Photothermoelectric detection of phase transitions. Liquid versus solid thermoelectric sensors*”
- 2017 Intermediary phase responsible, project NUCLEU (contract no. 19N/2016), Project title: “*Cercetări de frontieră dedicate dezvoltării de tehnologii moleculare*”, Phase no. 8: “*Vibrational spectroscopy as a tool used for investigating antibiotics-bacterial strains interactions*”. As a result of this work, our team developed and optimized from concept to experiment a new procedure based on SERS spectroscopy, microbiological analysis and SEM microscopy. Through this procedure, a comparative analysis of the antibacterial effect of several classic antibiotics and plant derived volatile essential oils, respectively, was accomplished for both Gram positive and negative bacterial strains.
- 2014-2019 I have submitted **4 proposals** in the following calls:
- 2014-Human Resources-TE. Project title: “*Antibiotics-induced structural changes in bacterial DNA molecules as probed with infrared spectroscopy*” (score: 82.5)
- 2016- Human Resources-TE. Project title: “*Innovative protocol based on ultrasensitive spectroscopic methods for investigation of antibiotic-induced structural changes in pathogenic bacterial DNA molecules*” (score: 79.5)
- 2019- Experimental Demonstrator Project (PED). Project title: “*Authentication of a Romanian dairy products (cheeses) using non-invasive analytical techniques*” (Project responsible from the partner INCDTIM. score: 77)
- 2019- Experimental Demonstrator Project (PED). Project title: “*Innovative dental composites, with fiberglass powder addition, having superior mechanical, antibacterial and remineralization properties*” (Project responsible from the partner INCDTIM. score: 88.8)

Technical Competence

- A very good expertise in a wide range of experimental techniques based on solid-state NMR technique, and different photopyroelectric and photothermoelectric techniques with applications on a broad variety of compounds.

- Independent use of the experimental devices specific for photothermal techniques in both front and back configurations, using modulated 532 nm laser radiation, as well as very good skills on design, manipulation and maintenance of experimental equipment depending on the type of applications.

Technical abilities of use/maintenance of the following equipment/software:

- Stanford SR830 Lock-in amplifier for electrical signal processing;
- Sources of radiation: (YAG (600mW), HeNe (30mW) lasers);
- Optical modulators and opto-mechanical devices (optical windows in the visible and IR spectrum, different types of lenses and mirrors);
- Sensors: LiTaO₃, PZT, PVDF, HgCdTe, InSb;
- Temperature control systems: Peltier elements, programmable power supply, electronic thermometers, thermostatic bath);
- LabView software for in-house routines programming;
- Origin and Mathematica software for experimental data processing.

Publications Scientometrics

30 ISI-indexed (14 as first author or corresponding author); 5 non-ISI articles (2 as first author)

H- index: Web of Science Core Collection 9

ISI citations: 190 (without self-citations)