

## Curriculum Vitae

### 1. Personal information

**Surname:** AVRAM  
**First Name:** Radu Daniel  
**Nationality:** Romanian  
**Languages:** English (good)  
Romanian (native tongue)  
**Office:** National Institute for Laser, Plasma and Radiation Physics (INFLPR)  
Plasma Physics and Nuclear Fusion Laboratory  
409 Atomistilor Str., P.O. Box MG-36, Bucharest R-077125, Romania  
E-mail: radu.avram@inflpr.ro



### 2. Education and Training

Institution	Period	Degrees or Diplomas
Faculty of Physics, University of Bucharest	October 2008 - June 2011	Diploma in Physics
Faculty of Physics, University of Bucharest	October 2011 - June 2013	MSc in Physics
Faculty of Physics, University of Bucharest	October 2016 - present	Phd in Physics Student

### Other Specializations and Qualifications:

XI International Krutyn Summer School 2012, “Cutting-Edge Luminescent Materials: Shifting the Frontiers” Krutyn, Poland, 23-29.09.2012

10th European short course on “Principles and Applications of Time-Resolved Fluorescence Spectroscopy” Berlin, Germany, 29.10-01.11.2012.

### 3. Professional experience

Institution	Period	Position
National Institute for Laser, Plasma and Radiation Physics; Laboratory of Solid-State Quantum Electronics	June 2012 - April 2015	Research Assistant
National Institute for Laser, Plasma and Radiation Physics; Laboratory of Solid-State Quantum Electronics	May 2015 - July 2017	Scientific Researcher
National Institute for Laser, Plasma and Radiation Physics; X-ray Imaging Laboratory: Microtomography and Microfluorescence	August 2017 - present	Scientific Researcher

#### 4. Computer skills and competences

<b>Operating systems:</b>	Windows
<b>Data analysis and representation:</b>	Origin Programming languages: C++, Labview, Matlab
<b>Text editing:</b>	OpenOffice.org, MS Word Presentations: OpenOffice.org, MS PowerPoint

#### 5. Publications in peer reviewed journals:

1. C. Tiseanu, B. Cojocaru, **D. Avram**, V. Parvulescu, M. Sanchez Dominguez "Isolated versus  $\text{Sm}^{3+}$ -defect associations in  $\text{CeO}_2$ : a spectroscopy investigation" *J. Phys. D: Appl. Phys.* **46**, 275302 (2013)
2. **D. Avram**, C. Rotaru, B. Cojocaru, M. Sanchez-Dominguez, M. Florea, C. Tiseanu "Heavily impregnated ceria nanoparticles with europium oxide: spectroscopic evidences for homogenous solid solutions and intrinsic structure of  $\text{Eu}^{3+}$  - oxygen environments", *J. Mater. Sci.*, **49**(5), 2117-2126 (2014)
3. C. Tiseanu, V. Parvulescu, **D. Avram**, B. Cojocaru, M. Boutonnet, M. Sanchez-Dominguez "Local structure and nanoscale homogeneity of  $\text{CeO}_2$ - $\text{ZrO}_2$ : Differences and similarities to parent oxides revealed by luminescence with temporal and spectral resolution", *Phys. Chem. Chem. Phys.* **16**, 703-710 (2014)
4. C. Tiseanu, V. Parvulescu, **D. Avram**, B. Cojocaru, N. Apostol, A. V. Vela-Gonzalez, M. Sanchez-Dominguez "Structural down- and phase selective up- conversion emission properties of mixed valent Pr doped into oxides with tetravalent cations", *Phys. Chem. Chem. Phys.* **16**, 5793-5802 (2014)
5. C. Tiseanu, V. Parvulescu, **D. Avram**, B. Cojocaru, M. Sanchez-Dominguez "Exceptional capability of  $\text{CeO}_2$ -  $\text{ZrO}_2$  to "dissolve" europium oxide established by X-ray Diffraction, Raman and time-resolved luminescence spectroscopy", *Dalton Trans.* **43**(20), 7622-7630 (2014)
6. **D. Avram**, C. Gheorghe, C. Rotaru, B. Cojocaru, M. Florea, V. Parvulescu, C. Tiseanu "Lanthanide - lanthanide and lanthanide - defect interactions in co - doped ceria revealed by luminescence spectroscopy", *J. Alloys Compd.* **616**, 535-541 (2014)
7. **D. Avram**, B. Cojocaru, M. Florea, V. Teodorescu, I. Tiseanu, C. Tiseanu "NIR to Vis - NIR up - conversion and X-ray excited emission of Er doped high Z  $\text{BiOCl}$ ," *Opt. Mater. Express* **5**, 951-962 (2015)
8. D. Avram, M. Florea, I. Tiseanu, C. Tiseanu "Time delay and excitation mode induced tunable red/near-infrared to green emission ratio of Er doped  $\text{BiOCl}$ ", *J. Phys. D: Appl. Phys.* **48**(35), 355501 (2015)
9. **D. Avram**, M. Sanchez-Dominguez, B. Cojocaru, M. Florea, V. Parvulescu, C. Tiseanu "Toward a Unified Description of Luminescence – Local Structure Correlation in Ln Doped  $\text{CeO}_2$  Nanoparticles: Roles of Ln Ionic Radius, Ln Concentration and Oxygen Vacancies", *J. Phys. Chem. C* **119**(28), 16303-16313 (2015)
10. **D. Avram**, A. Urda, B. Cojocaru, I. Tiseanu, M. Florea, C. Tiseanu "Pure and almost pure NIR emission of Tm and Tm, Yb -  $\text{CeO}_2$  under UV, X - ray and NIR up - conversion excitation: Key roles of level selective antenna sensitization and charge - compensation", *Phys. Chem. Chem. Phys.* **17**(46), 30988-30992 (2015)

11. **D. Avram**, B. Cojocaru, M. Florea, C. Tiseanu "Advances in luminescence of lanthanide doped  $\text{Y}_2\text{O}_3$ : case of  $\text{S}_6$  sites", *Opt. Mater. Express* **6**(5), 1635-1643 (2016)
12. M. Florea, **D. Avram**, B. Cojocaru, I. Tiseanu, V. Parvulescu, C. Tiseanu "Defects induced tunable near infrared emission of Er -  $\text{CeO}_2$  by heterovalent co - dopants" *Phys. Chem. Chem. Phys.* **18**, 18268-18277 (2016)
13. **D. Avram**, I. Porosnicu, B. Cojocaru, M. Florea, C. Tiseanu "Time-gated down-/up-conversion emission of Ho- $\text{CeO}_2$  and Ho, Yb- $\text{CeO}_2$  nanoparticles" *J. Lumin.* **179**, 256-271 (2016)
14. B. Cojocaru, **D. Avram**, V. Kessler, V. Parvulescu, G. Seisenbaeva, C. Tiseanu "Nanoscale insights into doping behavior, particle size and surface effects in trivalent metal doped  $\text{SnO}_2$ " *Sci. Rep.* **7**(1) 9598 (2017)
15. I. Porosnicu, **D. Avram**, B. Cojocaru, M. Florea, C. Tiseanu "Up-conversion luminescence of Er (Yb)- $\text{CeO}_2$ : Status and new results" *J. Alloys Compd.* **711**, 627-636 (2017)
16. **D. Avram**, B. Cojocaru, I. Tiseanu, M. Florea, C. Tiseanu "Down-/Up-Conversion Emission Enhancement by Li Addition: Improved Crystallization or Local Structure Distortion?" *J. Phys. Chem. C.* **121** (26), 14274–14284 (2017)
17. **D. Avram**, C. Tiseanu "Thermometry properties of Er, Yb- $\text{Gd}_2\text{O}_3$  microparticles: dependence on the excitation mode (cw versus pulsed excitation) and excitation wavelength (980 nm versus 1500 nm)." *Methods and applications in fluorescence*, **6**, 025004 (2018).

## 6. Presentations at national and international Conferences:

1. **D. Avram**, B. Cojocaru, N. Gheorghe, C. Tiseanu "Cubic and low symmetry centers in  $\text{Eu}^{3+}$  and  $\text{Sm}^{3+}$  doped  $\text{CeO}_2$  nanoparticles. Effects of dopant concentration and thermal treatment" **XI International Krutyn Summer School 2012**, Krutyn, Poland, 23-29.09.2012 (poster presentation)
2. **D. Avram**, B. Cojocaru, M. Florea, C. Tiseanu "Cubic and low symmetry of  $\text{Eu}^{3+}$  doped  $\text{CeO}_2$  nanoparticles: micro-Raman and luminescence spectroscopic study" **12<sup>th</sup> National Seminar of nanoscience and nanotechnology**, The Romanian Academy Library, Bucharest, 16.05.2013 (poster presentation)
3. **D. Avram**, C. Tiseanu "Cubic and low symmetry centres in  $\text{Eu}^{3+}/\text{Sm}^{3+}$  doped  $\text{CeO}_2$  nanoparticles: a micro-Raman and luminescence spectroscopic study" **Bucharest University Faculty of Physics 2013 Meeting**, Bucharest, 21.06.2013 (oral presentation)
4. D. Avram, C. Tiseanu "IR, NIR and Vis to NIR and Vis up - Conversion Emission in Er doped  $\text{BiOCl}$ " **JUNIOR EUROMAT 2014**, Lausanne, Switzerland, 21-25.07.2014 (poster presentation)
5. **D. Avram**, C. Tiseanu "Infrared and Near-Infrared to Visible and Near-Infrared up-conversion emission of Yb - Ln (Ln= Er, Tm) co-doped  $\text{CeO}_2$  nanoparticles for biological applications" **The 4th International Colloquium 'Physics of Materials' - PM-4**, Bucharest, Romania, 13-14.11.2014 (oral presentation)
6. **D. Avram**, B. Cojocaru, M. Florea, V. Parvulescu, C. Tiseanu "Luminescence properties of  $\text{CeO}_2$  doped with Ln ions under optical and X-ray excitation modes," **The 4th International Conference on the Physics of Optical Materials and Devices, ICOM 2015**, 31 August - 04 September 2015, Budva, Montenegro; Book of Abstracts, ISBN: 978-86-7306-134-4, p. 53, presentation S9-O30-165 (oral presentation)
7. **D. Avram**, B. Cojocaru, M. Florea, I. Porosnicu, V. Parvulescu, and C. Tiseanu, "Role of defects in shaping the emission of Ln doped  $\text{CeO}_2$ ," 2016 **International Conference on Defects in Insulating**

[Materials \(ICDIM 2016\)](#)", 10-15 July 2016, Lyon, France; presentation Th-P-16 (poster presentation)

8. **D. Avram**, B. Cojocaru, I. Tiseanu, M. Florea, C. Tiseanu "X-ray and pulsed Near-Infrared optical excitation of luminescence in Er doped  $Y_2O_3$  and  $Lu_2O_3$  Nanoparticles for Bio-imaging Applications" [IONS Balvanyos 2017](#) Conference, 25-28 July 2017, Balvanyos, Romania (poster presentation)
9. **D. Avram**, B. Cojocaru, I. Tiseanu, M. Florea, C. Tiseanu "X-ray and Near-Infrared Excitation of Luminescence in Ln doped Nanoparticles for Bio-imaging Applications", [SHIFT 2017 \(Spectral sHapIng For biomedical and energy applicaTions\)](#), 12 – 17 november 2017, Costa de Adeje, Spain (poster presentation)

## 7. Awards:

1. **D. Avram**, B. Cojocaru, I. Tiseanu, M. Florea, C. Tiseanu "X-ray and pulsed Near-Infrared optical excitation of luminescence in Er doped  $Y_2O_3$  and  $Lu_2O_3$  Nanoparticles for Bio-imaging Applications" [IONS Balvanyos 2017](#) Conference, 25-28 July 2017, Balvanyos, Romania (Awarded best poster presentation, second place)
2. **D. Avram**, B. Cojocaru, I. Tiseanu, M. Florea, C. Tiseanu "X-ray and Near-Infrared Excitation of Luminescence in Ln doped Nanoparticles for Bio-imaging Applications", [SHIFT 2017 \(Spectral sHapIng For biomedical and energy applicaTions\)](#), 12 – 17 november 2017, Costa de Adeje, Spain (Awarded Poster prize (special mention) offered by [J Mater Chem B, Royal Society of Chemistry](#))

## 8. Miscellaneous

**Member in Professional Associations:** OSA and SPIE Member