Leca Victor

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Work address:

Extreme Light Infrastructure-Nuclear Physics (ELI-NP)
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ROMANIA

Work experience

Period	1994 – 1997
Position	*chemical engineer and assistant researcher*
Employer name	Research and Development Institute for Electrical Engineering (ICPE SA), Bucharest, Romania
Main activities	research on bulk synthesis and physical-chemical characterization of high-T_C superconductors; phase diagrams of oxide-based systems

Period	1998
Position	*assistant Professor*
Employer name	University Polytechnic of Bucharest, Faculty of Applied Chemistry and Materials Science, Bucharest, Romania
Main activities	teaching and research

Period	01.1999 – 12.2003
Position	*Ph.D. and post-doctoral research fellow*
Employer name	University of Twente, Faculty of Science and Technology and MESA+ Institute for Nanotechnology, Enschede, The Netherlands
Main activities	research on thin film growth (mainly) by pulsed laser ablation (PLD), characterization and applications of oxide-based nanostructures

Period	01.2004 – 12.2011
Position	*Post-doctoral research fellow (full time until 06.2006, then part time)*
Employer name	University of Tübingen, Institute of Physics, Experimental Physics II Department, Tübingen, Germany
Main activities	fabrication and characterization of thin films and superlattices with superconducting, ferromagnetic, dielectric, ferroelectric properties; training of students in thin film growth methods (PLD, sputtering, e-beam evaporation), and characterization tools (X-ray diffraction, Reflection High Energy Electron Diffraction, Atomic Force Microscopy, magnetic and electric transport properties down to 4.2K), device fabrication, optical lithography.

Period	06.2006 – 05.2014
Position	*scientific researcher III*
Employer name	University Polytechnic of Bucharest, Faculty of Applied Chemistry and Materials Science, Bucharest

Main activities	research (fabrication and physical-chemical characterization of oxide based nanostructures, device fabrication); training of students; projects management; supervision of Master and PhD students.

Period	03.2011 – 05.2014 (full time); part time since 06.2014
Position	*scientific researcher II*
Employer name	National Institute for Research and Development in Microtechnologies, IMT – Bucharest
Main activities	fabrication of complex oxides (by pulsed laser ablation and RF/DC sputtering), their structural characterization, electrical transport and magnetic properties, and applications to devices for renewable energy, medicine, space.

Period	06.2014 – present
Position	*scientific researcher III*
Employer name	Extreme Light Infrastracture-Nuclear Physics, Horia Hulubei National Institute of Physics and Nuclear Engineering - IFIN HH
Main activities	fundamental physics studies with high power lasers, gamma ray beam, and positrons; analytical studies with positrons; setting up the Targets fabrication and characterization laboratory for experiments with high-power lasers and gamma-ray beams; applications in materials, physics, and life sciences of PW lasers and/or gamma rays.

Education and qualifications

Period	1989 - 1994
Diploma/ Qualification	**Bachelors Degree**/Chemical engineer Graduated with mark 9.55/10 (3rd out of 103 students)
Studied disciplines	Inorganic chemistry, materials science, chemical engineering
Institution Name	University Polytechnic of Bucharest, Faculty of Industrial Chemistry, Materials Science Department, Bucharest
Dissertation	*Structural and mechanical characterization of hot-pressed Si_3N_4*

Period	1995 - 1996
Diploma/ Qualification	**Master degree** in Chemistry, specialty: Oxide materials
Studied disciplines	Materials science, inorganic chemistry, structural characterization, electrical and magnetic properties of oxide materials (crystalline or amorphous)
Institution Name	University Polytechnic of Bucharest, Faculty of Industrial Chemistry, Materials Science Department, Bucharest
Dissertation	*Structural and electrical properties of $BaBiO_{3-x}$*

Period	1999-2003
Diploma/ Qualification	**PhD diploma**/Materials science
Studied disciplines	pulsed laser ablation (PLD), characterization (structural, morphological, transport properties) and applications of complex oxides thin films
Institution Name	University of Twente, Faculty of Applied Physics, Low Temperature Division and MESA+ Research Institute, Enschede, The Netherlands
Dissertation	*Heteroepitaxial growth of copper oxide superconductors by PLD*

Language competencies

Mother tongue	**Romanian**				
Known foreign languages	**English, Italian, French, German, Dutch**				
Self-evaluation	**Understanding**		**Speaking**		**Writing**
	Listening	Reading	Conversation	Oral speech	Writing
English	Experienced user	Experienced user	Experienced user	Experienced user	Experienced user
Italian	Average user	Average user	Average user	Average user	Average user
French	Average user	Average user	Average user	Average user	Average user
German	Beginner user	Beginner user	Beginner user	Beginner user	Beginner user
Dutch	Beginner user	Beginner user	Beginner user	Beginner user	Beginner user

Scholarships and research grants

1994: TEMPUS undergraduate scholarship (3 months), Centre de Recherches de l'Industrie Belge de la Ceramique-CRIBC, Mons, Belgium. *Research topic*: Structural and mechanical properties of Hot-Pressed Si_3N_4.

1995: TEMPUS research grant (10 months), Politecnico di Torino, Dipartimento di Scienza dei Materiali e Ingegneria Chimica, Torino, Italy. *Research topic*: Phase diagram of the BaO-Bi_2O_3 binary system: synthesis and characterization of new phases.

1998: NUFFIC research grant (3 months) and Romanian Ministry of Education research grant (9 months), University of Twente, Faculty of Applied Physics, Low Temperature Division, Enschede, The Netherlands. *Research topic*: Synthesis, structural and electrical transport properties of new phases in the SnO_2-SrO(BaO)-CuO systems.

1999: European Science Foundation (ESF) research grant (1 week), Oxfordshire Neutron Diffraction Laboratory, UK. *Research topic*: Oxygen network in (Ba,Sr)CuO_2-$CaCuO_2$ thin film superlattices.

2004: European Science Foundation (ESF) research grant (2.5 months) within PiShift program, University of Twente, Inorganic Materials Science Group, The Netherlands. *Research topic*: Development of technology for fabrication of $Sr_{1-x}La_xCuO_2$-based Josephson junctions.

2013: German Research Foundation (DFG) research grants (2 grants of two weeks each) at University of Tübingen, Institute of Physics, Tübingen, Germany. Research topic: Fabrication and transport properties of Superconducting Quantum Interference Devices (SQUIDs) based on $Sr_{1-x}La_xCuO_2$ compounds.

Topics of interest/experience

- artificial oxide nanostructures/superllatices with tailored properties (e.g., superconducting, multiferroics) by pulsed laser deposition (PLD) and pulsed laser interval deposition (PLiD);
- fabrication of multi-scale nanostructures by means of PLD for novel devices;
- *in-situ* studies of the nano-growth mechanisms, morphology evolution, surface reconstruction of complex oxide thin films using high-pressure RHEED;
- interface studies of oxide heterostructures using XRD and HRTEM;
- advanced characterization of oxide nanostructures using RHEED, XRD, AFM, HRTEM;
- magnetic and electrical-transport properties of oxide thin film heterostructures and devices down to 4.2 K;
- physics of hibrid oxide-metal nanomaterials and nanodevices;
- application of complex oxide nanomaterials and devices to materials science, physics, space

application, and medicine;

- synthesis and physical-chemical characterization of low- or high-critical temperature superconductors, dielectric, ferroelectric, ferromagnetic, or multiferroic materials, in bulk (by solid-state reactions or from sol-gel) or thin films (by PLD or sputtering);
- development of new synthesis methods/processes based on PLD and PLiD for fabrication of complex oxides or alloy thin films (e.g., $YBa_2Cu_3O_7$, $Sr_{1-x}La_xCuO_2$, MgB_2, $SrRuO_3$, $BaTiO_3$, $SrTiO_3$, $La_{1-x}Ce_xMnO_3$, $La_{1-x}Ca_xMnO_3$) with controllable morphological, structural, magnetic, and electrical transport properties suitable for their application to devices;
- development of chemical and physical etching methods for oxide-based, single crystal substrates (e.g., $SrTiO_3$, $NdGaO_3$, LSAT, $KTaO_3$, $SrLaAlO_3$, $DyScO_3$) in order to control the surface terminating layer and for yielding atomically flat surfaces (controlled morphology);
- development or improvement of the technology for the fabrication of grain boundary or ramp-type Josephson junctions based on high critical temperature superconductors;
- characterization tools: X-ray diffraction, X-ray fluorescence, Reflection High Energy Electron Diffraction, neutron diffraction, Scanning Electron Microscopy, Transmission Electron Microscopy, Atomic Force Microscopy, Energy dispersive X-ray spectroscopy, Differential thermal analysis;
- optical litography;
- phase diagrams studies of oxide-based systems (binary, ternary, quaternary);
- failure analysis of HIP-Si_3N_4 ceramics;
- clean-room experience.

Key achievements

- PhD degree in Materials Science, with topic related to synthesis of functional thin film oxides by Pulsed Laser Deposition;
- development of a new synthesis method for an n-type superconductor, by using an oxidation method starting from an oxygen defficient structure, as oppose to the classical reduction method; the resulted films could be stabilized within a larger substitution region, with better structural and electrical properties; the method could solve the contradicting deposition condition problem for heterostructures made of p- and n-type high T_c superconductors;
- development of new surface treatments (chemical and physical) for several oxide-based substrates for getting controlable surface composition, with atomic level roughness, required for sharp interfaces;
- installation and testing of one of the most complex UHV systems for thin films growth in Germany, at University of Tübingen; equipment troubleshooting and process development; training of students in thin film growth and characterization methods;
- publications in several top ISI journals (e.g., Physical Review Letters, Physical Review B, Applied Physics Letters).

Relevant scientific activity

A. Papers published in ISI indexed journals:

1. S. Scharinger, M. Turad, A. Stöhr, V. Leca, E. Goldobin, R. G. Mints, D. Koelle, and R. Kleiner, Magnetic field dependence of the critical current in $YBa_2Cu_3O_{7-x}$/Au/Nb ramp-zigzag Josephson junctions, *Physical Review B* **86**, 144531 (2012)
2. J. Tomaschko, S. Scharinger, V. Leca, J. Nagel, M. Kemmler, T. Selistrovski, S. Diebold, J. Jochum, R. Kleiner, and D. Koelle, Phase-sensitive evidence for d_{x2-y2}-pairing symmetry in the parent-structure high-Tc cuprate superconductor $Sr_{1-x}La_xCuO_2$, *Physical Review B* **86**, 094509 (2012)
3. J. Tomaschko, V. Leca, T. Selistrovski, S. Diebold, J. Jochum, R. Kleiner, and D. Koelle, Properties of the electron-doped infinite-layer superconductor $Sr_{1-x}La_xCuO_2$ epitaxially grown by pulsed laser deposition, *Physical Review B* **85**, 024519 (2012)
4. J. Tomaschko, V. Leca, T. Selistrovski, R. Kleiner, and D. Koelle, Importance of grain-boundary Josephson junctions in the electron-doped infinite layer cuprate superconductor $Sr_{1-x}La_xCuO_2$, *Physical Review B* **84**, 214507 (2011)
5. J. Tomaschko, C. Raisch, V. Leca, T. Chassé, R. Kleiner, and D. Koelle, Electric transport across $Sr_{1-x}La_xCuO_2$/Au/Nb planar tunnel junctions and x-ray photoelectron and Auger-electron spectroscopy on $Sr_{1-x}La_xCuO_2$ thin films, *Physical Review B* **84**, 064521 (2011)
6. V. Leca and E. Andronescu, Improved surface morphology of (110) $NdGaO_3$ substrates by thermal and chemical treatments, *Romanian Journal of Materials* **41**, 127-131 (2011)
7. V. Leca and E. Andronescu, Properties of $BaTiO_3$ thin films grown by laser ablation, *Romanian Journal of Materials* **40**, 149-152 (2010)
8. V. Leca, D. Neagu, E. Stefan, and E. Andronescu, Growth mechanism and properties of $YBa_2Cu_3O_7$ thin films deposited by laser ablation on (001) $SrTiO_3$, *Romanian Journal of Materials* **40**, 365-369, (2010)
9. R. Werner, C. Raisch, V. Leca, V. Ion, S. Bals, G. Van Tendeloo, T. Chassé, R. Kleiner, and D. Koelle, Transport, magnetic, and structural properties of $La_{0.7}Ce_{0.3}MnO_3$ thin films: Evidence for hole-doping, *Physical Review B* **79**, 054416 (2009)
10. V. Leca, G. Visanescu, C. Back, R. Kleiner, and D. Koelle, Growth mechanism, microstructure and transport properties of $Sr_{1-x}La_xCuO_2$ (x=0.10-0.15) thin films, *Applied Physics A* **93**, 779 (2008)
11. V. Leca, S. Bals, G. Van Tendeloo, D. H. A. Blank, and G. Rijnders, Superconducting $Sr_{1-x}La_xCuO_2$ (x=0.10-0.20) thin films with improved crystallinity grown by pulsed laser ablation, *Applied Physics Letters* **89**, 92504 (2006)
12. Ariando, D. Darminto, H. -J. H. Smilde, V. Leca, D. H. A. Blank, H. Rogalla, and H. Hilgenkamp, Phase-sensitive order parameter symmetry test experiments utilizing $Nd_{2-x}Ce_xCuO_{4-y}$/Nb zigzag junctions, *Physical Review Letters* **94**, 167001 (2005)
13. S. Bals, G. van Tendeloo, G. Rijnders, M. Huijben, V. Leca, and D. H. A. Blank, Transmission electron microscopy on interface engineered superconducting thin films, *IEEE Transactions on Applied Superconductivity* **13**, 2834 (2003)
14. C. Rusu, S. Sedky, B. Parmentier, A. Verbist, O. Richard, B. Brijs, L. Geenen, A. Witvrouw, F. Lärmer, F. Fischer, S. Kronmüller, V. Leca, and B. Otter, New low-stress PECVD poly-SiGe layers for MEMS, *Journal of Microelectromechanical Systems,* **12**, 816 (2003)
15. A. C. Galca, E. S. Kooij, H. Wormeester, C. Salm, V. Leca, J. H. Rector, and B. Poelsema, Structural and optical characterisation of porous anodic aluminum oxide, *Journal of Applied Physics* **94**, 4296 (2003)
16. S. Bals, G. van Tendeloo, G. Rijnders, D. H. A. Blank, V. Leca, and M. Salluzzo, Optimization of superconducting thin films by TEM, *Physica C* **372-376**, 711 (2002)
17. A. Brinkman, D. Mijatovich, G. Rijnders, V. Leca, H. J. H. Smilde, I. Oomen, A. A. Golubov, F. Roesthuis, S. Harkema, H. Hilgenkamp, D. H. A. Blank, and H. Rogalla, Superconducting thin films of MgB_2 on Si by pulsed laser deposition, *Physica C* **353**, 1 (2001)
18. G. Rijnders, G. Koster, V. Leca, D. H. A. Blank, and H. Rogalla, Imposed layer-by-layer growth with pulsed laser interval deposition, *Applied Surface Science* **168**, 223 (2000)

B. Articles published in international journals, indexed in international databases and/or articles published in conference proceedings:

1. V. Leca, G. Koster, G. Rijnders, K. Verbiest, G. van Tendeloo, D. H. A. Blank, and H. Rogalla, Deposition, structure and characterization of superlattices from Ba-Sr-Ca-Cu-O systems, *Proceedings to the 10th CONSILOX Conference, Romania*, 198 (2000)
2. V. Leca, G. Rijnders, G. Koster, D. H. A. Blank, and H. Rogalla, Wet etching methods for perovskite substrates, *MRS Symposium* **587**, O3.6.1 (2000)
3. V. Leca, Sintering behaviour of Si_3N_4, ICPE journal **3-4**, 15 (1997)

C. Conference contributions:

C1. Oral presentations

1. V. Leca, J. Tomaschko, M. Danila, D. Wang, W. A. Bik, R. Kleiner, and D. Koelle, Strain relaxation and superconductivity in electron-doped $Sr_{1-x}La_xCuO_2$ thin films grown by laser ablation, International Conference on Superconductivity and Magnetism-ICSM 2014, Istanbul, Turkey (2014)
2. V. Leca, J. Tomaschko, M. Danila, Di Wang, W. A. Bik, D. Koelle, and R. Kleiner, Application of SQUIDs to phase-sensitive experiments, Electroceramics XIV conference, Bucharest, Romania (2014)
3. V. Leca, J. Tomaschko, D. Wang, M. Danila, W. A. Bik, R. Kleiner, and D. Koelle, Superconducting $Sr_{0.85}La_{0.15}CuO_2$ bicrystal grain boundary Josephson junctions, 11th European Conference on Applied Superconductivity - EUCAS, Genova, Italy (2013)
4. V. Leca, J. Tomaschko, M. Danila, W. A. Bik, A. Oprisa, R. Kleiner, and D. Koelle, Structural and electrical properties in superconducting $Sr_{0.85}La_{0.15}CuO_2$-based nanostructures, International Conference on Superconductivity and Magnetism-ICSM 2012, Istanbul, Turkey (2012)
5. V. Leca, G. Visanescu, S. Bals, Ch. Back, G. Van Tendeloo, R. Kleiner, and D. Koelle, Growth mechanism, microstructure, and electrical transport properties of $Sr_{1-x}La_xCuO_2$ thin films grown by PLD, 9th International Conference on Laser Ablation - COLA 2007, Tenerife, Spain (2007)
6. V. Leca, G. Rijnders, S. Bals, G. van Tendeloo, and D. H. A. Blank, Modified doping range for the superconducting phase in $Sr_{1-x}La_xCuO_2$ (x=0.1-0.2) thin films, Interfaces in Oxide Thin film Structures – 2nd THIOX Conference, Santa Margherita Ligure, Italy (2005)
7. V. Leca, G. Rijnders, D. H. A. Blank, H. Rogalla, S. Bals, and G. van Tendeloo, Growth and properties of $Sr_{1-x}La_xCuO_2$ (x=0.1-0.2) thin films, E-MRS Conference, Strasbourg, France (2002)
8. V. Leca, G. Rijnders, D. H. A. Blank, H. Rogalla, S. Bals, and G. van Tendeloo, Properties of $Sr_{1-x}La_xCuO_2$ thin films grown by PLD, 3rd European Conference on Advanced Materials and Technologies, Bucuresti, Romania (2002)
9. V. Leca, G. Rijnders, M. Huijben, D. H. A. Blank, H. Rogalla, S. Bals, and G. van Tendeloo, Imposed layer-by-layer growth of epitaxial $ReBa_2Cu_3O_{7-x}$ thin films with pulsed laser interval deposition, 2nd European Conference on Advanced Materials and Technologies, Bucuresti, Romania (2001)
10. D. H. A. Blank, G. Rijnders, G. Koster, V. Leca, and H. Rogalla, Imposed layer-by-layer growth of high temperature superconductors with pulsed laser interval deposition, Superconductivity Group Annual Conference, Birmingham, UK (2001)
11. V. Leca, D. H. A. Blank, G. Rijnders, and H. Rogalla, Deposition, structure and electrical properties of superlattices from Ba-Sr-Ca-Cu-O system, 10th CONSILOX Conference, Alba Iulia, Romania (2000)
12. V. Leca, D. H. A. Blank, G. Rijnders, and H. Rogalla, Etching methods for perovskite substrates, 10th CONSILOX Conference, Alba Iulia, Romania (2000)
13. G. Rijnders, D. H. A. Blank, G. Koster, V. Leca, and H. Rogalla, Imposed layer-by-layer growth with pulsed laser interval deposition, E-MRS Conference, Strasbourg, France (2000)
14. V. Leca, D. H. A. Blank, G. Rijnders, and H. Rogalla, Structure and properties of $(Sr,Ca)CuO_2$-$BaCuO_2$ superlattices grown by PLD, E-MRS Conference, Strasbourg, France (2000)
15. G. Rijnders, D. H. A. Blank, G. Koster, V. Leca, and H. Rogalla, Initial growth of $SrRuO_3$ on vicinal $SrTiO_3$ substrates using pulsed laser deposition, 7th International Workshop on Oxide Electronics, Les Diablerets, Switzerland (2000)
16. G. Rijnders, D. H. A. Blank, G. Koster, V. Leca, and H. Rogalla, Manipulating the nucleation and growth of ReBaCuO, MRS Fall Meeting, Boston, USA (2000)
17. D. H. A. Blank, V. Leca, G. Rijnders, and H. Rogalla, Wet etching methods for perovskite substrates, 12th American Conference on Crystal Growth and Epitaxy, Colorado, USA (2000)

18. M. Chirculescu and V. Leca, Electrical properties of $YBa_2Cu_3O_{7-x}$ doped with Na, Nd, and Ta, National Conference of Electrical and Magnetic Materials, Cluj Napoca, Romania (1993)

C2. Posters

1. Victor Leca, Andreea Oprisa, Septimiu Balascuta, Nikolay Djourelov, and Calin A. Ur, Analytical methods based on positrons, IZEST – ELI-NP "Extreme Light's New Horizons - Introducing Zepto and Zetawatt Science & Societal applications" Conference, Paris, France (2014)
2. N. Djourelov, C.A. Ur, A. Oprisa, V. Leca, S. Balascuta, T. Marian, C. Petcu, B. Tatulea, V. Buznea, M. Conde, and C. Paun, Gamma–to–Positron Converter for High Intensity and High Brilliance Positron Source at ELI–NP. Design Challenges and Simulation by GEANT4, IZEST – ELI-NP "Extreme Light's New Horizons - Introducing Zepto and Zetawatt Science & Societal applications" Conference, Paris, France (2014)
3. J. Tomaschko, V. Leca, R. Kleiner, and D. Koelle, Superconducting $Sr_{1-x}La_xCuO_2$ (x=0.125) thin films and junctions, Applied Superconductivity Conference, Washington DC, USA (2010)
4. A. Blank, M. Turad, Ch. Maurer, V. Leca, Ch. Back, R. Kleiner, and D. Koelle, Ramp-type Josephson junctions with $YBa_2Cu_3O_7$ and Nb electrodes, Deutsche Physikalische Gesellschaft (DFG) Conference on Condensed Matter, Dresden, Germany (2009)
5. R. Werner, V. Leca, Ch. Back, Ch. Raisch, T. Chasse, R. Kleiner, and D. Koelle, Pulsed laser deposited $La_{0.7}Ce_{0.3}MnO_3$ thin films: dependence of the properties on growth parameters, Deutsche Physikalische Gesellschaft (DFG) Conference on Condensed Matter, Dresden, Germany (2008)
6. G. Visanescu, V. Leca, S. Bals, G. Rijnders, D. H. A. Blank, R. Kleiner, and D. Koelle, Properties of $Sr_{1-x}La_xCuO_2$ thin films grown by pulsed laser ablation, XIII International Workshop on Oxide Electronics, Ischia, Italy (2006)
7. V. Leca, G. Rijnders, D. H. A. Blank, S. Bals, G. Visanescu, R. Kleiner, and D. Koelle, New method to obtain superconducting $Sr_{1-x}La_xCuO_2$ thin films by PLD, Deutsche Physikalische Gesellschaft (DFG) Conference on Condensed Matter, Dresden, Germany (2006)
8. V. Leca, G. Rijnders, S. Bals, D. H. A. Blank, N. Schopohl, R. Kleiner, and D. Koelle, Single phase infinite-layer type $Sr_{1-x}La_xCuO_2$ thin films grown by PLD, 7th European Conference on Applied Superconductivity (EUCAS'05), Viena, Austria (2005)
9. V. Leca, G. Rijnders, D. H. A. Blank, S. Bals, G. van Tendeloo, and N. Schopohl, Superconductivity in PLD grown $Sr_{1-x}La_xCuO_2$ thin films by a new synthesis approach, Spectroscopies of Novel Superconductors Conference, Sitges, Spain (2004)
10. V. Leca, G. Rijnders, D. H. A. Blank, and H. Rogalla, Initial growth modes of $ACuO_2$ thin films deposited on $NdGaO_3$, 5th European Conference on Applied Superconductivity, Copenhagen, Denmark (2001).
11. V. Leca, G. Rijnders, G. Koster, D. H. A. Blank, and H. Rogalla, Wet etching methods for perovskite substrates, MRS Fall Meeting, Boston, USA (2000) poster (selected best poster)
12. V. Leca, I. Pasuk, and S. Cotescu, Influence of sintering history on electrical behaviour of Ca and Sr-doped $BaBiO_3$, IVth Ceramic Congress, Eskisehir, Turkey (1998)
13. V. Leca and D. Libert, Sintering behaviour of commercial Si_3N_4 powders, Xth National Conference of Chemistry, Bucharest, Romania (1997)
14. V. Leca and S. Ronchetti, $BaO-Bi_2O_3$ system, Xth National Conference of Chemistry, Bucharest, Romania (1997)
15. M. Chirculescu and V. Leca, The influence of Na_2O on the superconducting properties of $YBa_2Cu_3O_{7-x}$, National Conference of Physics, Cluj Napoca, Romania (1994)

D. Books

1. V. Leca, *Heteroepitaxial growth of copper oxide superconductors by pulsed laser deposition*, ISBN 9036519284, Ed. Printpartners Ipskamp, The Netherlands (2003)

E. Patents

1. Title: In-situ fabrication method of ramp-type Josephson junctions based on high critical temperature superconducting thin films
   Inventors: V. Leca, E. Andronescu. Assignee: University Polytechnic of Bucharest

F. Participation in funded research projects (selection)

Name of the project and time scale	Funding organization	Role
Bolometers for space applications in middle and long IR, 2012-2014	Romanian Space Agency	MRT
Immunoassay Lab-on-a-chip for cellular apoptosis study, 2012-2015	Romanian Ministry of Education and Research	MRT
Experimental studies on the order parameter symmetry of $Sr_{1-x}La_xCuO_2$ (x=0.15-0.175) thin films using SQUIDs, 2011-2015	Romanian Ministry of Education and Research	PL
High-T_c ramp-type Josephson junctions and SQIFS, 2008-2011	German Research Foundation (DFG)	MRT
Order parameter symmetry in electron-doped high temperature superconductors, 2007-2011	German Research Foundation (DFG)	MRT
Development of the superconducting quantum interference device (SQUID) technology for magnetocardiography, 2007-2010	Romanian Ministry of Education and Research	PL
$Sr_{1-x}La_xCuO_2$ - based (x=0-0.20) planar Josephson junctions, 2006-2008	Romanian Ministry of Education and Research	PL
Superconducting Microtraps (TRR21/Project C2), 2005-2010	German Research Foundation (DFG)	MRT
Nano-engineering of oxide heterostructures by PLD, 2004-2005	Baden Würtemberg Government, Germany.	PL
KATO-Micro antenna (20K0302K), 2004-2005	Federal Ministry of Economics and Labor (BMWA), Germany	MRT

Abbreviations: MRT - member of the research team, PL - project leader

G. Co-supervision of Diploma or Master Dissertations:

- Pulsed laser deposition and properties of cuprate superconductors; University of Tübingen, Institute of Physics, Experimental Physics II Department, Tübingen, Germany and University of Bucharest, Faculty of Physics, Bucharest, Romania - Master thesis;
- Fabrication of ramp-type Josephson junction from $YBa_2Cu_3O_7$ high critical temperature superconductor; University of Tübingen, Institute of Physics, Experimental Physics II Department, Tübingen, Germany – Master thesis;
- Structure-physical properties correlation in $La_{0,7}Ca_{0,3}MnO_3$ thin films and $YBa_2Cu_3O_{7-\delta}$/ $La_{0,7}Ca_{0,3}MnO_3$ heterostructures grown by pulsed laser ablation; University Polytechnic of Bucharest, Faculty of Applied Chemistry, Materials Science Department, Bucharest, Romania (2008) – Diploma thesis;
- Preliminary studies for fabrication of $YBa_2Cu_3O_{7-\delta}$ and $PrBa_2Cu_3O_{7-\delta}$ based ramp-type Josephson junctions by pulsed laser ablation; University Polytechnic of Bucharest, Faculty of Applied Chemistry, Materials Science Department, Bucharest, Romania (2008) – Diploma thesis;
- Preparation and characterization of $La_{0.7}Ce_{0.3}MnO_3$ thin films; University of Tübingen, Institute of Physics, Experimental Physics II Department, Tübingen, Germany (2008) – Master thesis.

Co-supervision of PhD Dissertations:

- Fabrication of dc-SQUIDs based on all high-T_c superconductor ramp-type Josephson junctions; University of Tübingen, Institute of Physics, Experimental Physics II Department, Tübingen, Germany (2007-2011);
- Phase-sensitive order parameter symmetry test experiments utilizing $Sr_{1-x}La_xCuO_2$ (x=0.10-0.15) based junctions; University of Tübingen, Institute of Physics, Experimental Physics II Department, Tübingen, Germany (2008-2012);
- Preparation and characterization of $La_{0.7}Ce_{0.3}MnO_3/YBa_2Cu_3O_7$ bilayers; University of Tübingen, Institute of Physics, Experimental Physics II Department, Tübingen, Germany (2008-2012);

- Oxide-based nanostructures: PLD thin films growth and characterization; University Polytechnic of Bucharest, Faculty of Applied Chemistry, Materials Science Department, Bucharest, Romania (2010-2013).

H. Seminars (selection):

1. Structural defects in high critical temperature superconductor thin films - University of Twente, The Netherlands, 11.2001;
2. Challenges in PLD growth of $Sr_{1-x}La_xCuO_2$ (x=0.1-0.2), an n-type IL superconductor - University of Twente, The Netherlands, 11.2002;
3. Epitaxial growth of p- and n-type HTSc materials by pulsed laser (interval) deposition - University of Tübingen, Germany, 12.2003;
4. Growth manipulations by means of Pulsed Laser Deposition - University of Tübingen, Germany, 07.2004;
5. Methods of improving the surface morphology for substrates with layered structure - University of Tübingen, Germany, 10.2004;
6. Growth modes and growth manipulation of epitaxial thin films - University of Tübingen, Germany, 12.2004;
7. Reflection High Energy Electron Diffraction (RHEED): growth study and manipulation - University of Tübingen, Germany, 03.2005;
8. Pulsed Laser Deposition as a tool for growth of complex oxide films - University of Tübingen, Germany, 06.2005;
9. Thin film growth and analysis: from growth to devices - University of Tübingen, Germany, 08.2005;
10. Experimental studies on the symmetry of the order parameter in $Sr_{1-x}La_xCuO_2$ superconducting compounds - National Institute for R&D in Microtechnologies, Bucharest, Romania, 03.2012.

I. Editorial activities:

1. Reviewer for Physica C, Optics Communications (both Elsevier journals);
2. Reviewer at the following conferences: 9th International Conference on Laser Ablation – COLA 2007, Tenerife, Spain (2007); 7th European Conference on Applied Superconductivity (EUCAS'05), Vienna, Austria (2005); Interfaces in Oxide Thin film Structures, Santa Margherita Ligure, Italy (2005); International Semiconductor Conference – CAS (since 2012);
3. Expert evaluator for the Romanian Ministry of Education.

Abilities:

Analytical and research skills; flexibility and adaptability in managing multiple priorities; communications skills (listening, verbal, written); management skills; problem solving; creativity; team player; multicultural awareness; computer and technical skills.

Date: 09.10.2014 Victor Leca