

Dr. Petrica CRISTEA
Associate Professor

E-mail: pcristea@fpce1.fizica.unibuc.ro
University of Bucharest - Faculty of Physics
Bucharest – Magurele MG 11, ROMANIA

□ **AREA OF EXPERTISE**

Modeling	Experimental Techniques	Software
<ul style="list-style-type: none"> • Ceramics and sintering processes. • Non-stoichiometric metal oxides, nuclear fuels, diffusion and heat transport in nuclear fuels. • Solar energy conversion using heterojunction solar cells. • Nanometric physics and devices. • Materials simulations. • Electricity and magnetism. 	<ul style="list-style-type: none"> • Mercury Porosimetry and Specific Surface Analysis (BET Method). • Differential Thermogravimetry (DTG). • Differential Thermal Analysis (DTA). • Differential Thermal Dillatometry (DTD). • X-ray diffraction (XRD). • Scanning Electron Microscopy (SEM). • Scanning Tunneling Microscopy (STM). • Vacuum Deposition Techniques. 	<ul style="list-style-type: none"> • Mathcad • MathConnex • Scilab • OriginPro • FlexPDE • WinGreen • Dynamics Solver • NanoEngineer • Comsol

Citizenship: Romanian

Foreign languages: Fluent in *English*; good knowledge of *French*

□ **KEY ACCOMPLISHMENTS**

- Developed modeling software (including theory) of point defects and oxygen diffusion in ceramic systems such as Ce-O, U-O, and Pu-O;
- Designed and implemented numerical methods for simulating the phase diagram of complex binary systems.
- Performed advanced, finite element simulations of coupled heat conduction, species diffusion and thermal expansion in nuclear fuel elements;
- Developed modeling software dedicated to self-consistent simulations of AlGaAs/GaAs interfaces and 2DEG systems, including HEMT transistors and multibarrier systems;
- Performed experimental validation of models and simulations using X-ray diffraction (XRD), Differential Thermal Analysis (DTA), Differential Scanning Calorimetry (DSC) and Scanning Electron Microscopy (SEM) on various materials/systems such as: BaFe₁₂O₁₉, SrFe₁₂O₁₉, NiZn, LiTiZn, and MnZn based ferrites, CdS, Cu₂S, GaAs, Si, Si/Al, Si/Au, Ge/Al, Ge/Au, GaAs/Al, GaAs/Au;
- Designed and taught courses on Electricity and Magnetism (graduate level), Nanometric Devices (PhD and MS level), Applications of Nanoelectronics in Biology, (PhD and MS level), Molecular Dynamics (PhD and MS level);
- Supervised and trained the students representing Romania at the International Physics Olympiads and contests.

□ **EDUCATION**

Ph.D., Physics, 1997, University of Bucharest, Romania.

M.S., Electronic Physics, 1981, University of Bucharest, Bucharest, Romania.

B.S., Physics, 1980, University of Bucharest, Romania.

□ **POSTDOCTORAL**

University of California - Los Alamos National Laboratory, U.S.A. Post-doctoral Research Associate, 6/2002-1/2006. Materials Science and Technology Division MST-8, Structure / Properties Relations Group, Materials and Process Simulations Team.

ADVANCED TRAINING and CLASSES

- **Plutonium Lectures Series**, sponsored by the Laboratory's Glenn T. Seaborg Institute for Transactinium Science, July 2005, Los Alamos NM, USA.

- **FEMLAB (COMSOL) Multiphysics Minicourse**, organized by COMSOL, Inc., May 3, 2005, Los Alamos Research Park, Advisor: Dr. David Kan.

- **The American Society for Metals, ASM International Los Alamos Chapter Diploma**, July 2003, for completing the course "*Introduction to Plutonium Metallurgy*", Advisor: Dr. Karl Staudhammer.

□ **EMPLOYMENT HISTORY**

University of Bucharest, Faculty of Physics, Romania

Associate Professor, 01/2006 – present.

- Designed and taught courses on Nanometric Devices (PhD and MS level), Applications of Nanoelectronics in Biology, (PhD and MS level), Molecular Dynamics (PhD and MS level)
- Designed and taught courses on Electricity and Magnetism (graduate level)

University of California - Los Alamos National Laboratory, U.S.A.

Post-doctoral Research Associate, 6/2002-12/2005, Materials Science and Technology Division MST-8 (Structure / Properties Relations Group, Materials and Process Simulations Team).

- Development of modeling software (including theory) dedicated to materials modeling and process simulations in nuclear fuels.
- Designed and implemented numerical methods and codes for modeling of nonstoichiometric metal oxides, thermochemistry of oxygen defects, oxygen and heat diffusion in nuclear fuels.
- Designed and implemented numerical methods for simulating the phase diagram of complex binary systems.

University of Bucharest, Faculty of Physics, Romania

Associate Professor, 8/2000-6/2002.

- Designed and taught courses on Materials for Electronics (graduate level), Nanometric Electronics and Devices (MS level).
- Studied the 2 DEG Properties in GaAs/Al_xGa_{1-x}As Systems, Resonant Tunneling in GaAs/Al_xGa_{1-x}As Double and Triple-Barrier Structures, Quantum Point Contacts (QPC): Au/(Au, Pt, Al, Pb), Pt/(Pt, Al, Pb), Al/(Al, Pb), Chaotic Motions in RF Traps.
- Tutored over 30 undergraduate and MS thesis on Electricity and Magnetism and Electronic Devices.

Lecturer, 10/1991-8/2000.

- Taught courses on Electricity and Magnetism (graduate level), Solar Cells Technology.
- Designed numerical methods and codes for modeling of GaAs/Al_xGa_{1-x}As heterojunction transistors.
- Studied the microstructural properties of vacuum deposited thin layers, investigated the electron irradiation effect on semiconductor thin layers, implemented methods for processing of thin layer Au (Al, Pt)/GaAs Schottky barrier diodes.

Assistant Professor, 10/1987-10/1991.

- Supervised students and organized the experimental work in laboratories.
- Taught electricity and Magnetism and Experimental Techniques in Physics.
- Experimentally studied the Cu_{2-x}S/CdS Solar Cells and the evolution of thin layers microstructure under high-energy electron irradiation.

ROFEP S.A., URZICENI, 8230, Romania

Technical Staff Member, 9/1981-10/1987

- Head of X-Ray and SEM/TEM Laboratory, 4/1985-6/1987
- Studied the technology and the properties of manganese-zinc ferrites for power applications.
- Used DTA/DTD, BET, XRD, and SEM/TEM.

□ **PROFESSIONAL MEMBERSHIPS**

- American Physical Society, APS (Condensed Matter Physics, Materials Physics).
- New York Academy of Sciences, NYAS.
- The Minerals, Metals & Materials Society, TMS.
- European Physical Society, EPS.
- Romanian Physical Society, RPS.
- Balkan Physics Union, BPU.

□ **JOURNAL REVIEWER / REFEREE**

- Solid State Electronics (Elsevier).
- Journal of Physics and Chemistry of Solids (Elsevier).
- Modeling and Simulation in Materials Science and Engineering, MSMSE (IOP).
- International Journal of Heat and Mass Transfer (Elsevier).
- Journal of Optoelectronics and Advanced Materials, JOAM (INOE & INFM).
- Romanian Reports in Physics (Romanian Academy).
- Romanian Journal of Physics (Romanian Academy).
- Annals of Bucharest University. Series: Physics.

□ **MISCELLANEOUS**

- Invited Visiting Faculty Member, University of California - Los Alamos National Laboratory, Los Alamos, NM, U.S.A., 08/2007 – 02/2008.
- Invited lecture: “*The Science of Imperfect Materials*”, University of New Mexico, July 6, 2004, USA
- Invited lecture: “*Multi-scale thermodynamics of actinide oxides*” at the 50th anniversary Gordon Research Conference: High Temperature Materials, Processes & Diagnostics, July 18-23, 2010, Colby College, Waterville, ME, USA.
- Included in Marquis Who's Who in the World 2011.
- Included in Marquis Who's Who in the World 2010.
- Included in Top 25 Hottest Articles (October to December 2006), Materials Science, with the paper “*Simulations of heat and oxygen diffusion in UO_2 nuclear fuel rods*, authors: Ramirez, J.C., Stan, M., and Cristea, P.” published in Journal of Nuclear Materials, Vol. **359**, Issue 3, December 2006, Pages 174-184.
- Highlighted paper: Authors: M. Stan and P. Cristea, “*Defects and Oxygen Diffusion in PuO_{2-x}* ”, Journal of Nuclear Materials, **344**, 213 (2005), in “*Investigating and understanding, the relationships between material properties and their underlying structures*”, MST-8 News, Oct. 10, 2005, Los Alamos National Laboratory, NM, USA.
- Co-organizer and Chairman of the section *Advanced Nuclear Materials* - ROCAM 2006, Bucharest, Romania.
- Co-organizer and Chairman of the section *Materials under Extreme Conditions* of ROCAM 2009, Bucharest, Romania.
- Technical Staff Member training students representing Romania at the International Physics Olympiads and contests.
- Member of the Scientific Council - Faculty of Physics, University of Bucharest.

□ **OTHER AREAS OF INTEREST**

- History of Physics;
- Theory of Numbers;
- Modeling of social behavior and patterns under critical events or natural disasters;
- Modeling the influence of wrong or misleading decisions on shaping the trend and the long-term development of education in natural sciences;
- Literature: Published author of poetry;
- Sports: Table tennis – 1977 National champion of men’s table tennis tournament Pentagon of Physics Faculties (organized by the Ministry of Sports, Ministry of Education, and hosted by Babes-Bolyai University, Cluj – Napoca, Romania).

PUBLICATIONS

A) Books

- P. Cristea, *Special Electron Devices*, Vol. 1, University of Bucharest Press UBP 1999, (in Romanian).
- S. Antohe, E. Barna, A. Belea, P. Cristea, A. Dafinei, M. Fronescu, V. Grecu, A. Ionescu, A. Petrescu, V. P. Nita, and C. Stanescu, *Friendly Physics through not so easy questions*, University of Bucharest Press UBP 1999, (in Romanian).

B) Articles in Journals

- B. Mihailă, M. Stan, J. C. Ramirez, A. Zubelewicz, and P. Cristea, “*Simulations of Coupled Heat Transport, Oxygen Diffusion, and Thermal Expansion in UO₂ Nuclear Fuel Elements*”, Journal of Nuclear Materials, **394** (2-3), 182 (2009).
- M. Cruceru, D. Bartos, I. Cruceru, G. Caragheorghopol, O. G. Dului, A. Barborica, P. Cristea, C. M. Niculae, R. C. Bobulescu, “*A coordinate sensitive detector for particles generated in high energy reactions*”, Romanian Reports in Physics, Vol. 61, **3**, 513 (2009)
- M. Stan, B. Mihaila, A. Zubelewicz, J. C. Ramirez, and P. Cristea, “*Simulation of Heat and Oxygen Transport in a Nuclear Fuel Element*”, Theory, Simulation, and Computation (ADTSC), Science Highlights, **2008**, 148 (2008).
- M. Stan, S. Rudin, J. Wills, B. P. Uberuaga, S. M. Valone, S. Hu, and P. Cristea “*Models and Simulations of UO₂ Fuel Materials Properties*”, Theory, Simulation, and Computation (ADTSC), Science Highlights, **2008**, 144 (2008).
- M. Stan, J. C. Ramirez, P. Cristea, B. P. Uberuaga, S. Srivilliputhur, C. Deo, S. Y. Hu, S. P. Rudin, and J. M. Wills, “*Models and Simulations of Nuclear fuels Properties*”, Journal of Alloys and Compounds, **444**, 415 (2007) (Review paper)
- P. Cristea, M. Stan, and J. C. Ramirez, “*Point Defects and Oxygen Diffusion in Fluorite-Type Oxides*”, Journal of Optoelectronics and Advanced Materials, **9**(6), 1750 (2007)
- J. C. Ramirez, M. Stan, and P. Cristea, “*Simulations of Heat and Oxygen Diffusion in UO₂ Nuclear Fuel Rods*”, Journal of Nuclear Materials, **359**, 174 (2006)
- P. Cristea and M. Stan “*Oxygen Diffusivity in CeO_{2-x}*”, TMS Letters, **2**, 91 (2005)
- M. Stan and P. Cristea, “*Defects and Oxygen Diffusion in PuO_{2-x}*”, Journal of Nuclear Materials, **344**, 213 (2005)

- M. Stan and P. Cristea, “*Thermochemistry of Defects and Oxygen Diffusion in PuO_{2-x}* ”, Transactions of the American Nuclear Society, **91**, 491 (2004)
- P. Cristea and I. Spanulescu, “*Analytical Charge-Control Model for DH-HEMT*”, Scientific Journal, Series A, Vol. 2, **2**, 102 (2001)
- I. Spanulescu and P. Cristea, “*Nanometric Devices*”, Scientific Bulletin, Vol. 1, **1**, 15 (2000). (Anniversary issue dedicated to honour Leo Esaki’s contribution to the development of new quantum structures)
- P. Cristea, S. Spanulescu, I. Secareanu, and I. Spanulescu, “*S-Matrix Approach for Resonant Tunneling in Double and Triple GaAs/AlGaAs Barrier Structures*”, Balkan Physics Letters **6(2)**, 113 (1998)
- P. Cristea, “*Resonant Tunneling in GaAs/Al(Y)Ga(1-Y)As Triple-Barrier Structures under Uniform Transverse Magnetic Field*”, Romanian Reports in Physics, Vol.50, No. **7-8-9**, 641(1998)
- C. M. Niculae and P. Cristea, “*Clausius' Theorem and Confined Motions in RF Traps*”, Romanian Reports in Physics, Vol. 50, No. **7-8-9**, 663, (1998)
- P. Cristea, I. Spanulescu, I. Secareanu, V. Ruxandra, S. Spanulescu, and N. Baltateanu, “*Electron irradiation effect on vacuum-evaporated CdS thin layers*”, Journal of Materials Science Letters **12**, 1467 (1993)
- L. Stanciulea, J. Neamtu, M. Feder, E. Segal, P. Cristea, and L. Gal, “*Considerations on the sintering of manganese-zinc ferrite for power applications*”, Journal of Materials Science Letters **11**, 961 (1992)
- I. Spanulescu, V. Ruxandra, I. Secareanu, P. Cristea, N. Baltateanu, and G. Stoenescu, “*CdSe Thin Films for Solar Cells*”, Annals of University of Bucharest, Bucharest, Fizica, XXXIX, **13** (1990)
- I. Spanulescu and P. Cristea, “*New Trends in the Development of Contemporary Microelectronics. I*”, Studii si Cercetari de Fizica, Tom 41, Nr.**5**, 537 (1989) (in Romanian)
- I. Spanulescu and P. Cristea, “*New Trends in the Development of Contemporary Microelectronics. II*”, Studii si Cercetari de Fizica, Tom 41, Nr.**5**, 549 (1989) (in Romanian)
- M. Feder, G. Catoiu, M. Catoiu, E. Segal, and P. Cristea, “*Sintering of LiTiZn ferrite with low saturation magnetization*”, Journal of Materials Science Letters **6**, 1201 (1987)
- M. Feder, G. Catoiu, M. Catoiu, E. Segal, M. Enescu, and P. Cristea, “*Considerations on nickel-zinc ferrite preparation*”, Journal of Materials Science Letters **4**, 1485 (1985)
- I. Dima, I. Secareanu, and P. Cristea, “*Transient Photovoltaic Effect in Cu_2S/CdS Solar Cells*”, Revue Roumaine de Physique, Tome 26, No **8-9**, 1037 (1981)

C) Invited lectures

- M. Stan, B. Mihaila, P. Cristea, S. Hu, and J. C. Ramirez, “Discovery and Design of Materials for Energy Applications”, Romanian Conference on Advanced Materials ROCAM 2009, August 25-28, Brasov, Romania
- M. Stan, B. Mihaila, D. A. Korzekwa, P. Cristea, and J. C. Ramirez, “*Computational Design of Advanced Nuclear Fuels*”, Multiscale Materials Modeling MMM 2008, October 27-31, Tallahassee, Florida, U.S.A.
- M. Stan, P. Cristea, S. Y. Hu, B. Mihaila, S. M. Valone, A. D. Andersson, L. A. Morales, K. J. McClellan, and J. C. Ramirez, “*Thermodynamics of Advanced Oxide Nuclear Fuels*”, Materials Science and Technology Conference, Oct. 5-9, 2008, Pittsburgh, PA, U.S.A.
- M. Stan, B. Mihaila, S. M. Valone, A. D. Andersson, K. J. McClellan, L. Morales, S. D. Conradson, S. P. Rudin, J. M. Wills, P. Cristea, and J. C. Ramirez, Models and Simulations of Advanced Oxide Fuels, Nuclear Energy Capability Review, Los Alamos National Laboratory, May 12-16, 2008
- M. Stan, B. Mihaila, S. M. Valone, A. D. Andersson, K. J. McClellan, L. Morales, S. D. Conradson, S. P. Rudin, J. M. Wills, P. Cristea, and J. C. Ramirez, “*Thermodynamic Models of Actinide Oxides*” Materials Capability Review, Los Alamos National Laboratory, April 28 – May 1, 2008, U.S.A.
- M. Stan, S. Y. Hu, B. Mihaila, P. Cristea, and J. C. Ramirez, “*Multiscale Simulation of Thermo-mechanical Processes in Irradiated Fission-Reactor Materials*”, Computational Materials Science Network (CMSN) Symposium, Salt Lake City, UT, Sept. 13-15, 2007, U.S.A.
- M. Stan, J.C. Ramirez and P.Cristea, “*Thermodynamics Of Nuclear Fuel Materials*”, High Temperature Materials Chemistry conference, HTMC, Vienna, Austria, Sept. 18-22, 2006.
- M. Stan, J. C. Ramirez, P. Cristea, B. P. Uberuaga, S. Srivilliputhur, C. Deo, S. Y. Hu, S. P. Rudin, and J. M. Wills, “*Models and Simulations of Nuclear Fuel Materials Properties*”, Plutonium Futures – The Science 2006, July 9–13, 2006, Asilomar Conference Grounds, Pacific Grove, California, U.S.A.
- M. Stan, J. C. Ramirez, and P. Cristea, “*Thermodynamic Models and Simulations of Nuclear Fuel Materials*”, E-MRS Conference, Nice, France, May 29-June 1, 2006 (invited).
- M. Stan, P. Cristea, S. M. Valone, B. P. Uberuaga, M. I. Baskes, C. Deo, and J. C. Ramirez “*Models and Simulations of Thermodynamic Properties of Actinide Based Materials*”, MST Division Review, March 1-3, 2005, Los Alamos, New Mexico, U.S.A.

- P. Cristea, “*The Science of Imperfect Materials*”, University of New Mexico UNM, LASS Lectures, Rm. 612, July 6, 2004, Los Alamos, New Mexico, U.S.A.
- P. Cristea, S. Spanulescu, I. Secareanu, and I. Spanulescu, “*S-Matrix Approach for Resonant Tunneling in Double and Triple GaAs/AlGaAs Barrier Structures*”, 3rd General Conference of the Balkan Physical Union (BPU-3), 2-5 Sept., Cluj-Napoca, 1997, Romania
- I. Spanulescu and P. Cristea, “*Electron Irradiation Effect on Thin Semiconductor Layers and Semiconductor Devices*”, Proceedings of the 13th International Semiconductor Conference CAS, 81, Sinaia, Romania (1990)

D) Keynotes lecture

- M. Stan, J. C. Ramirez, P. Cristea, S. Y. Hu, C. Deo, B. P. Uberuaga, S. Srivilliputhur, T. Watanabe, S. R. Phillpot, R. W. Grimes, S. P. Rudin, and J. M. Wills, “*Models and Simulations of Thermodynamic Properties and Transport Phenomena in UO_{2+x}* ”, International Information Exchange Meeting on Thermodynamics of Nuclear Fuels, Nov. 27-Dec. 1, 2006, Saclay, France

E) Conferences & Workshops

- M. Stan, B. Mihaila, S. Y. Hu, J. C. Ramirez, and P. Cristea, “*Models and Simulations of Nuclear Fuels: Results and Strategy*”, Materials Models and Simulations for Nuclear Fuels (MMSNF-8) Workshop, Oct. 19-21, 2009, Albuquerque, New Mexico, U.S.A.
- M. Stan, C. R. Stanek, B. P. Uberuaga, B. Mihaila, S. M. Valone, A. D. Andersson, P. Cristea, S. Y. Hu, J. C. Ramirez, V. Tikare, P. Turchi, and M. Samaras, “*Computer Simulations for Nuclear Energy Applications*”, High Speed Computing Conference, Salishan Lodge, April 27-30, 2009, Gleneden Beach, Oregon, U.S.A.
- M. Stan, S. Y. Hu, B. Mihaila, P. Cristea, and J. C. Ramirez, “*Mesoscale Models and Simulations of Nuclear Fuels*”, Computational Materials Science Network (CMSN) Project on Multiscale Simulation of Thermo-mechanical Processes in Irradiated Fission-Reactor Materials”, March 11-12, 2009, Univ. of Florida, FL., U.S.A.
- P. Cristea and M. Stan, “*Analytical Model of Defect Configurational Entropy of PuO_{2-x} and CeO_{2-x}* ”, MRS Spring Meeting, Symposium NN: Actinides IV Basic Science, Applications, and Technology, March 25-28, 2008, San Francisco, California, U.S.A.
- P. Cristea and M. Stan, “*Simulations of Coupled Heat and Oxygen Diffusion in Porous Urania Fuel*”, Materials Models and Simulations for Nuclear Fuels (MMSNF-6) workshop, Tokyo, Japan, Dec. 14-15, 2007.
- M. Stan, J. C. Ramirez, P. Cristea, S. Y. Hu, C. Deo, B. P. Uberuaga, S. Srivilliputhur, S. P. Rudin, and J. M. Wills, “*Models and Simulations of Nuclear Fuel Materials Properties*”,

Materials Capability Review, Los Alamos National Laboratory, Los Alamos, NM, May 15-18, 2007.

- P. Cristea, M. Stan, and J. C. Ramirez, “*Point Defects and Oxygen Diffusion in Fluorite-Type Oxides*”, Romanian Conference on Advanced Materials ROCAM 2006, September 11-14, Bucharest-Magurele, Romania
- M. Stan, J.C. Ramirez, P. Cristea, M.I. Baskes, S.M. Valone, and Z. Hu, “*Thermodynamics of Roses-Toward Predictive Thermodynamic Models and Simulations*”, THERMO International 2006, Sixteenth Symposium on Thermophysical Properties, Nineteenth International Conference on Chemical Thermodynamics, Sixty-First Calorimetry Conference, July 30 – August 4, 2006, University of Colorado Boulder, Colorado, U.S.A.
- M. Stan, J. C. Ramirez and P. Cristea, “*Materials models and fuel performance simulations*”, Proceedings of the Materials Models and Simulations for Nuclear Fuels, MMSNF-5, June 1-2, 2006, Novotel Nice Centre, Nice, France
- J. C. Ramirez, M. Stan, and P. Cristea, “*Simulations of Heat and Oxygen Diffusion in UO_{2+x} Nuclear Fuel Rods*”, Proceedings of the Materials Models and Simulations for Nuclear Fuels, MMSNF-5, June 1-2, 2006, Novotel Nice Centre, Nice, France
- M. Stan, J.C. Ramirez, and P. Cristea, “*Thermodynamic Models and Simulations of Nuclear Fuel Materials*”, USAE-MRS IUMRS ICEM 2006, SYMPOSIUM N: Nuclear Materials and Materials for Fusion, Spring Meeting, May 29 – June 2, 2006, Strasbourg, France
- J. C. Ramirez, P. Cristea, and M. Stan, “*Finite element modeling of heat and oxygen atom diffusion in nuclear fuel rods*”, American Physical Society APS Meeting, March 13-17, 2006, Baltimore, Maryland, USA
- P. Cristea and Marius Stan, “*Thermochemistry of Point Defects in PuO_{2-x}* ”, 2006 TMS Annual Meeting and Exhibition, Point Defects in Materials Symposium, March 12-16, 2006, San Antonio, Texas, USA
- P. Cristea and M. Stan, “*Oxygen Diffusion in UO_{2+x}* ” Proceedings of the Materials Modeling and Simulations for Nuclear Fuels, MMSNF-4 Workshop, Nov. 17-18, 2005, Washington, D.C., USA
- J.C. Ramirez, P. Cristea, S. Y. Hu, M. Stan, and M. I. Baskes, “*Incorporating Atomistic and Phase Field Calculations into Heat, Oxygen, and Helium Transport Simulations in Nuclear Fuel Rods*”, Proceedings of the Materials Modeling and Simulations for Nuclear Fuels, MMSNF-4 Workshop, Nov. 17-18, 2005, Washington, D.C., USA
- J.C. Ramirez, P. Cristea, and M. Stan, “*Modeling heat and oxygen atom diffusion in nuclear fuel rods with FEMLAB*”, Proceedings of the FEMLAB Conference, October 23-25, 2005, Boston, MA, USA

- J. C. Ramirez, P. Cristea, and M. Stan, “*Simulations of Heat Transfer and Oxygen Diffusion in UO_2 Fuels*”, Proceedings of the Materials Science and Engineering for Nuclear Fuels Workshop, October 26-27, 2005, Los Alamos, New Mexico, USA
- B. P. Uberuaga, M. Stan, C. Deo, P. Cristea, S. G. Srivilliputhur, S. Rudin, J. Wills, and T. Patten, “*Multi-Scale Models of Defects and Oxygen Diffusion in Oxide Fuels*”, Proceedings of the Materials Science and Engineering for Nuclear Fuels Workshop, October 26-27, 2005, Los Alamos, New Mexico, USA.
- M. Stan, J. C. Ramirez, P. Cristea, C. S. Deo, B. P. Uberuaga, S. Srivilliputhur, S. P. Rudin, and J. M. Wills, “*Models and Simulations in Support of Nuclear Fuels*”, AFCI Semi-Annual Meeting, Sept. 21-23, 2005, Arlington, VA, USA
- P. Cristea, “*Thermochemistry of Defects and Oxygen Diffusion in PuO_{2-x} and UO_{2+x}* ” LANL Poster Session, June 22, 2005, Los Alamos, New Mexico, USA
- P. Cristea and M. Stan “*Oxygen Diffusivity in CeO_{2-x}* ”, 2005 TMS Annual Meeting and Exhibition, Multicomponent Multiphase Diffusion Symposium in Honor of John E. Morrall, Feb. 13-17, 2005, San Francisco, California, USA
- P. Cristea and M. Stan, “*Analytical Model of Defect Configurational Entropy of CeO_{2-x} and PuO_{2-x}* ”, Proceedings of The 16th Annual Rio Grande Symposium on Advanced Materials RGSAM 2004, Oct. 25th, Albuquerque, New Mexico, USA
- P. Cristea, M. Stan, T. C. Wallace, and K. V. Woan “*Controlling Nonstoichiometry of PuO_{2-x} and UO_{2+x}* ”, Proceedings of the Materials Modeling and Simulations for Nuclear Fuels, MMSNF-3 Workshop, Nov. 18-19, 2004, Washington, D.C., USA
- M. Stan and P. Cristea, “*Thermochemistry of Defects and Oxygen Diffusion in PuO_{2-x}* ”, 2004 American Nuclear Society ANS Winter Meeting, Development and Testing of Fuels for Advanced Reactors Session (sponsored by MSTD), Nov. 14-18, 2004, Washington, D.C., USA
- M. Stan, P. Cristea, and T. C. Wallace Sr., “*Defect Thermochemistry and Phase Stability in PuO_{2-x}* ”, Proceedings of the 11th International Symposium on Thermodynamics of Nuclear Materials STNM-11, September 6-9, 2004, Karlsruhe, Germany
- S. Long, S. Willson, H. T. Blair, S. Voit, J. Dunwoody, M. Lopez, K. J. McClellan, D. Byler, M. Stan, and P. Cristea, “*Oxide Fuel Fabrication Efforts at Los Alamos for the Advanced Fuel Cycle Initiative AFCI*”, MST Division Review, Feb. 17-19, 2004, Los Alamos, New Mexico, USA
- M. Stan, P. Cristea, T. C. Wallace, Sr., M. I. Baskes, S. G. Srivilliputhur, S. M. Valone, A. Zubelewicz, K. J. McClellan, J. M. Wills, S. P. Rudin, and A. M. Niklasson, “*Materials Models and Simulations for Nuclear Fuels*”, MST Division Review, Feb. 17-19, 2004, Los Alamos, New Mexico, USA

- M. Stan, P. Cristea, T. C. Wallace Sr., and S. M. Valone, "*Phase Stability and Oxygen Diffusion in Plutonia*", Actinide Oxides in the Environment, as Stored Material for Nuclear Fuel Fabrication, and in Practical Weapons Components (sponsored by the Seaborg Institute), Jan. 28-29, 2004, Los Alamos, New Mexico, USA
- M. Stan, P. Cristea, and T. C. Wallace Sr., "*Phase Stability and Diffusion in Actinide Based Ceramics and Surrogate Materials*", Proceedings of the Materials Modeling and Simulations for Nuclear Fuels, MMSNF-2 Workshop Nov. 20-21, 2003, New Orleans, Los Angeles, USA
- C. M. Niculae and P. Cristea, "*Chaotic Behavior of Linear Motion in Hexapolar RF Traps*" FFB 2003 Workshop, (sponsored by the Univ. of Bucharest, Faculty of Physics), May 30, 2003, Magurele - Bucharest, Romania
- T. C. Wallace Sr., M. Stan, and P. Cristea, and Andrew Thompson (LANL, USA) "*Phase Stability in Materials for Nuclear Fuels Applications*", Proceedings of the Materials Modeling and Simulations for Nuclear Fuels, MMSNF-1 Workshop June 9-10, 2003, Santa Fe, New Mexico, USA
- P. Cristea, M. Stan, S. M. Valone, and K. J. McClellan "*Defect Thermochemistry of Nonstoichiometric Metal Oxides*", Proceedings of the Materials Modeling and Simulations for Nuclear Fuels, MMSNF-1 Workshop June 9-10, 2003, Santa Fe, New Mexico, USA
- P. Cristea and M. Stan "*A Model of Defect Thermochemistry in Nonstoichiometric Ceria*" CALPHAD XXXII, International Conference on Phase Diagram Calculations and Computational Thermochemistry, May 25-30, 2003 La Malbaie, Quebec, Canada
- P. Cristea, I. Spanulescu, I. Secareanu, and N. Baltateanu, "Electron Irradiation Effect on Al(Au)GaAs(x)P(1-x) Schottky-Barrier Diodes", Proceedings of The 13th European Photovoltaic Solar Energy Conference and Exhibition EPSECE, Oct. 23-27, Nice, France (1995)
- P. Cristea, I. Spanulescu, I. Secareanu, I. Dima, and N. Baltateanu, "*Electron irradiation effect on Microstructural Properties of CdS Thin Films*", Proceedings of the International Conference on Solar and Wind Energy SWE, Oct. 2-4, 1989, Bucharest, Romania (1989)
- M. Feder, G. Catoiu, M. Catoiu, E. Segal, and P. Cristea, "*Sintering of LiTiZn ferrite with low saturation*", Proceedings of the 9th International Conference on Microwave Ferrites, Bulgaria (1987)
- M. Feder, G. Catoiu, M. Catoiu, E. Segal, and P. Cristea, "*Considerations on Li substitution ferrites sintering*", Proceedings of the 8th International Conference on Microwave Ferrites, Sept. 8-12, Technische Hochschule Ilmenau, Germany (1986)
- P. Cristea, I. Secareanu, I. Dima, and I. Spanulescu, "*Photovoltaic Properties of Cu_xS/CdS solar cells*", Progresses in Physics, Oct. 9 - 11, Galați, Romania, 306 (1986)

- M. Feder, G. Catoiu, M. Catoiu, E. Segal, M. Enescu, and P. Cristea, "*Considerations on Nickel-Zinc Ferrite Preparation*", Proceedings of the 7th International Conference on Microwave Ferrites, Bratislava (1984)
- P. Cristea, I. Dima, and I. Secareanu, "*Transient Photovoltaic Effect in Cu₂S/CdS Solar Cells*", Proceedings of the International Conference on Photovoltaic and Optoelectronic Processes, Bucharest, July 4-7, 174 (1984).
- P. Cristea, "*Slow Transient Photovoltaic Effects in Cu₂S/CdS Heterojunction Solar Cells*", Proceedings of the International Conference on Photovoltaic and Optoelectronic Processes, Bucharest, July 4-7, 178 (1984)

F) Technical Reports (Peer-reviewed international databases)

- B. Mihaila, J. Ramirez, P. Cristea and M. Stan, "*Thermal Expansion of UO_{2+x} Nuclear Fuel Rods from a Model Coupling Heat Transfer and Oxygen Diffusion*", Los Alamos National Laboratory Tech. Report, LA-UR:-08-04952, New Mexico, USA (2008), also included in DOE Scientific and Technical Information database (<http://www.osti.gov>).
- P. Cristea and M. Stan, "*Thermochemistry of Defects and Oxygen Diffusion in PuO_{2-x} and UO_{2+x}*", Los Alamos National Laboratory Report, LA-UR: 04-6020, New Mexico, USA (2004)
- P. Cristea and M. Stan, "*Oxygen Diffusion in Nonstoichiometric Cerium Dioxide*", Los Alamos National Laboratory Report, LA-UR: 04-5196, New Mexico, USA (2004)
- P. Cristea and M. Stan, "*Thermochemistry of Defects and Oxygen Diffusion in Ceria. Preliminary Extension to Plutonia*", Los Alamos National Laboratory Report, LA-UR: 03-7597, 2003, USA (2003)