

RESUME – PREDRAG S. KRSTIC
August, 2018

PERSONAL:

Born in Belgrade, Yugoslavia; Naturalized U.S. Citizen (December 7, 2002);
Married, two children.

EDUCATION:

- Ph.D. in Theoretical Physics, Physics Department, City College of CUNY, New York 02/1982
Dissertation: Hydrogen Atom in Ultra-Strong Laser Field, Supervisor: Marvin H. Mittleman
- M.Sc. in Exp. Plasma Physics, Faculty of Electrical Engineering, Belgrade University (Yugoslavia) 1979.
Thesis: Electric Arc in Magnetic Field as Standard of High Temperaturesz, Supervisor M. Todorovic
- B.Sc. Technical Physics, Data Processing, Faculty of Electrical Engineering, Belgrade University (Yugoslavia) 1975
Thesis: Sphero-Symmetric Gravitational Collapse, Supervisor Dj. Zivanovic .

PROFESSIONAL EXPERIENCE

2013- Research Professor of IACS, Stony Brook University
2012- Consultant, DBA Theoretik Consulting, Founder
2007- Adjunct Professor, Physics and Astronomy, University of Tennessee, TN
2015- Adjunct Professor, Material Sciences and Chemical Engineering, Stony Brook University
2012- 2013 Senior Scientist II of JICS, University of Tennessee, Knoxville, TN
2006-2012, Senior R&D Staff, Physics Division, Oak Ridge National Laboratory, TN
Note: On 31st Dec. 2011 P. Krstic voluntarily retired in ORNL, to take duties as owner of a consultant company, as well as scientific duties in the JICS, UTK.
1998-2006 R&D Staff, Physics Division, Oak Ridge National Laboratory, TN
1995-1998 Research Fellow, Physics Division, Oak Ridge National Laboratory, TN
1992-1995 Visiting Scholar, Physics, University of Connecticut, Storrs, CT
1987-1994 Senior Scientist & Professor of Physics, Institute of Physics of Belgrade University
1979 -1981 Graduate Student, Physics, City College of C.U.N.Y, New York
1976 -1979 Research Assistant & Graduate student, Institute of Physics of Belgrade University

PROFESSIONAL ACTIVITIES AND HONORS:

Fellow of the American Physical Society, elected 2004, Citation: “*For his important and diverse contributions to atomic theory, in particular, to the theory of non-adiabatic heavy-particle collisions and of relativistic effects in ultra-strong laser-atom interaction.*” Member since 1980.

Consultant and invited technical missions at International Atomic Energy Agency (IAEA, Vienna), Atomic and Molecular Data Unit (Nuclear Fusion); 1985, 1988, 1989, 1990, 1991, 1996, 1998, 2000, 2002, 2005, 2007, 2008, 2010, 2011, 2012, 2014, 2015

- A US FES representative at biennial and decennial IAEA meetings on nuclear fusion data (2002-2014)

- Institutional PI for the six international Coordinated Research Projects for data production and evaluation on heavy atomic and molecular collisions in plasmas and on plasma-material interactions.

Conference Chair:

- International Workshop on Sensitivity, Error and Uncertainty Quantification for Atomic, Plasma and Material Data, IACS/SBU, 2016
- Summer School of 4th International Conference on Nano-Giga Challenges in Electronic, Photonic and Renewable Energy & 14th Canadian Semiconductor Conference, Hamilton, Ontario (2009)
- International Workshop on New Directions of Advanced Computer Simulations and Experiments in Fusion-Related Plasma-Surface Interactions (PSIF), ORNL, March 2005

Conference Co-Chair:

- IISC-18, Gatlinburg, TN (2010)
- 3rd ICAMDATA, Gatlinburg, TN, (2002)
- Nano-Giga Challenges in Electronics in Phoenix, AZ (2007), in Hamilton (Canada, 2009), in Moscow (2011)
- 14th Canadian Semiconductor Conference (2009)
- XII SPIG, Sibenik, (1984)
- CDAMP, Brioni, (1988)

Program Committees Member:

- MoD-PMI, Marseille (2015), Loughborough UK (2016), Julich (2017)
- ICPEAC (2011-2015)
- 3rd, 4th and 5th International Conference on Nano-Giga Challenge in Microelectronics, Phoenix, AZ (2007), Hamilton, Canada (2009), Moscow (2011)
- IISC18 (2010), Gatlinburg, TN
- CDAMP (1988), Brioni, Yugoslavia
- XII and XIII SPIG, Sibenik, (1984), Dubrovnik (1986), Yugoslavia

Fusion Community Databases:

- Controlled Fusion Atomic Data Center (CFADC); <http://www-cfadc.phy.ornl.gov> (development database software engines for input and data-search and contributions to the data in bibliography, production of elastic collisions databases, collection and evaluation of data for inelastic heavy-particle collisions)
- Contributions to IAEA ALADDIN Databases, <https://www-amdis.iaea.org/ALADDIN/> (development of database concepts, contributions of data for inelastic and elastic heavy particle collisions, particle-surface collisions)

Community Contributions

- Invited to the [Fusion Energy Sciences Advisory Committee \(FESAC\) panel](#) (June, 2014) to present research priorities on Integrated Multi-Scale Divertor Simulation Project and contributed to the Report on Strategic Planning for US Fusion.

- Invited to [DOE Exascale Requirements Review FES/ASCR](#) (January 2016, Gaithersburg) to present exascale research challenges in *Multiscale Approach for Plasma Material Interface*, and contribute to the report
- Invited to the [Research Needs in Fusion DOE](#) Theme 3 Workshop (ReNeW) to present *Fundamental science of the synergy of multi-species interactions in a high plasma-heat-flux Environment*, and to contribute to the final DoE report

EDITORIAL APPOINTMENTS

Member of Editorial Boards:

- Matter and Radiation at Extremes (CAEP)
- J. Atom. Molec. Opt. Phys. (Hindawi)
- Conference Papers in Physics; J. Nanomed.& Nanotec. (OMICS)
- International Journal of Nano Studies & Technology (IJNST) (SciDOC)
- Journal of Biosciences and Medicines (Scientific Research Publ.)

Books:

Guest Co-Editor of 11 books of the conference proceedings in Nanotechnology (IOP), Physica Scripta (IOP), Nanoscale Research Letters (Springer), Nuclear Instruments and Methods in Phys. Res. B, World Scientific, AIP Conference Series.

EDUCATIONAL ACTIVITIES

Current Ph.D. Students

Y. Wang (SBU, with R. Harrison)

Y. Zhang (SBU with J. Trelevicz)

Michal Novotny (IACS/SBU), sponsored by Fulbright grant, Comenius University

Ph.D. Students Graduated:

Dr. D.B. Milosevic (Institute of Physics, Belgrade), Member of Academy of Science of Bosnia

Dr. M. Rakovic (Institute of Physics, Belgrade, Professor at Western Michigan U.

Dr. M. Radmilovic (University of Belgrade), Research Professor at Institute of Physics, Belgrade

Dr. J. Dadras (ORNL/UTK), postdoc at UCLA

Dr. N. Vence, (ORNL/UTK with R. Harrison)

Dr. L. Han, (SBU/IACS)

Postdoctorals Supervised

Dr. Javier Dominguez G (Current IACS/SBU), Sponsored by CONACYT (Mexico)

Dr. S. Joseph (ORNL), sponsored by NIH Grant

Dr. J.H. Park (ORNL postdoc), professor at Gyeongsang National University, South Korea

Dr. R Zikic(ORNL), Research Professor at Institute of Physics, Belgrade, Serbia

EXTERNAL FUNDING:

Active:

- *Quantum-Classical Science For The Plasma Material Interface in NSTX-U*
Award #:DE-SC0013752
Source of Funding: DOE-Office of Science: FES (Through RF of SBU)
PI/PD: P. Krstic (0.4 FTE)

Duration: 2015-2018

- *Elucidating the Role of Grain Boundaries in the Damage Tolerance of Refractory Metals*
Awarded by NSF DMR Metals and Metallic Nanostructures Program to RF-SBU
PI: Jason Trelewicz
Role: Co-PI, 0.1 FTE
Duration: 08/2018-07/2021
- *Erosion, Redeposition and Recycling of Li PFCs in LTX- β*
Awarded by USDOE-FES, to Princeton University
PI: Bruce Koel
Role: Co-PI, 0.2 FTE (Consortium with TheoretiK)
Duration: 08/2018-07/2021

Past:

- *Theory of Nanosynthesis of Carbon Nanotubes and Boron-Nitride Nanotubes in Plasma*
Source of funding: PPPL through subcontract with RF-SBU (support for L. Han, graduate student of SBU)
PI: P. Krstic
Duration: 02/2016-08/2017
- *Theoretical Studies of Nucleation and Growth of B-C-N Nanomaterial in Plasma*
Source of Funding: PPPL through subcontract with TheoretiK (Funding of DOE, BES-MSED on grant Fundamental Studies of Synthesis of Nanomaterials: A joint challenge for plasma and materials sciences (Pi/PD: Y.Reitses, PPPL)
Role: Co-PI
Duration: 10/2014-09/2017
- *Instrument to optimize DNA sequencing by recognition tunneling*
Arizona State University, Award of NIH/NHGRI to ASU, HG 006323, PI S. Lindsay,
Through subcontract with TheoretiK
Role: Co-PI
Duration 10/2011-09/2016
- *DNA Sequencing Through Quadrupole Gate*
Source of funding: NIH/NHGRI with ORNL, Award # HG004764
Role: PI (0.4 FTE)
Duration: 09/2008-08/2011
- *Computational Methods for Rapid DNA Sequencing Technology*
Source of funding: NIH/NHGRI with ORNL, Award # HG 003578, PI J. Lee
Role: Co-PI (0.2 FTE+PD)
Duration: 10/2004 -09/2007
- *Sensitivity, Error and Uncertainty Quantification for Atomic, Plasma and Material Data,*
Source of funding: NSF, Award # 1560572 for the conference support to RF SBU
Role: PI
Duration: 11/2015-6/2016
- *Development of Suite of Atomistic Codes for Fusion Advanced Materials*
LDRD PPPL grant (PI: I. Kaganovich)
Role: Co-PI (through TheoretiK)
Duration: 10/2013 – 09/2016
- *Tungsten Surface Damage Induced by Impacts of Self-Atoms*

Source of funding: ORNL, Physics Division, through subcontract with Theoretik

Role: PI

Duration: 2012-2013

- *The controlled Fusion Atomic Data Center*
Source of funding: US DOE FES Grant to ORNL, CFADC-Physics, ERAT131
Role: PI with D.R. Schultz (0.4 FTE)
Duration: 10/2001-09/2012
- *Fusion Atomic Theory*
Source of funding: US DOE OFES Grant to ORNL, CFADC-Physics, ERAT110
Role: PI with D.R. Schultz (0.1 FTE)
Duration: 10/2001-2012
- *Modeling of the Plasma-Material Interface*
ORNL Seed LDRD
Role: PI
Duration: 2010-2011
- *Irradiation Effects in the Graphene Based Electronics*
ORNL Seed LDRD
Role: PI
Duration: 2010-2011
- *Plasma-Surface Interface in ITER: Interactions, Chemistry, Sputtering*
ORNL-CNMS user project
Role: PI
Duration 2008-2009
- *Center for Plasma Edge Simulation*
Source of Funding: US DOE FES and ASCR (SCIDAC) PI C.S. Chang (PPPL)
Role: Collaborator (0.15 FTE)
Duration: 2006-2008
- *Excited State Quantum-Classical Molecular Electronics*
ORNL Seed LDRD
Role: PI
Duration: 2005- 2006
- *Oriented polymer nanostructures as single-photon resources in quantum cryptography and molecular optoelectronics*
Source of funding: ARDA (Advanced Research and Development Activity), PI M. Barnes
Role: Co-PI (0.1 FTE)
Duration: 2003-2005
- *Computational Nanoscience at the Terascale: Self Assembled Monolayers and Molecular Electronics*
ORNL LDRD project (PI D. Dean)
Role: Co-PI (0.3 FTE)
Duration: 2001-2003
- *Atomic and Molecular Data for State-Resolved Modelling of Hydrogen and Helium and Their Isotopes in Fusion plasma*
Joint IAEA-University of Tennessee Coordinated Research Projects
Role: PI

- Duration 2011-2015
International travel award
- *Data for surface composition dynamics relevant to erosion processes*
Joint IAEA-ORNL Coordinated Research Projects
Role: PI
Duration: 2007-2010
International travel award
 - *Atomic and molecular data for fusion plasma diagnostics*
Joint IAEA-ORNL Coordinated Research Projects
Role: PI
Duration: 2001-2005
International travel award
 - *Atomic Data for fusion divertor modeling*
Joint IAEA-ORNL Coordinated Research Project
Role: PI
Duration: 1997-2000
International Travel award
 - *Atomic and molecular data for fusion*
Joint IAEA- Institute of Physics (Belgrade) Coordinated Research Project
Role: PI
Duration: 1988-1990, 1990-1992
Amount: International travel award
 - *Strong laser-atom interactions*
Joint US NSF-Yugoslav research projects
Role: PI
Duration: 1986-1988, 1989-1991
International travel award