Predrag S. Krstić
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Present Positions:

Founder, Project director, TheoretiK Consulting
Senior Research Scientist II, Joint Institute of Computational Sciences (JICS), University of Tennessee, Knoxville
Adjunct Professor, Department of Physics and Astronomy, University of Tennessee
Senior Scientist & Project Manager, Physics Division, Oak Ridge National Laboratory (*Retired*)

Education:

Ph.D. in Theoretical Physics, Physics Department, City College of C.U.N.Y., New York 02/1982
M.Sc. in Exp. Plasma Physics, Faculty of Electrical Engineering, Belgrade University (Yugoslavia) 1979
B.S. Technical Physics, Faculty of Electrical Engineering, Belgrade University (Yugoslavia) 1975

Employment:

01/2012-present, DBA TheoretiK Consulting, Knoxville, TN, USA (founder, Project Director)
01/2012-present, Joint Institute of Computational Sciences, University of Tennessee (Senor Scientists II)
03/2007-present, Department of Physics and Astronomy, University of TN, Knoxville (adjunct professor)
03/2006-12/2011, Physics Division, Oak Ridge National Laboratory, Oak Ridge, TN (Senior Research Staff)
Note: On 31 Dec. 2011 P. Krstic voluntarily retired in ORNL, to take duties in his consultant company, as well as scientific advisor duties in the JICS, UTK.
01/1998-03/2006, Physics Division, Oak Ridge National Laboratory, Oak Ridge, TN (R&D Staff Scientist)
01/1995-01/1998, Physics Division, Oak Ridge National laboratory, Oak Ridge, TN, (Research Fellow)
07/1992-01/1995, Physics Department, University of Connecticut, Storrs, CT, USA (Visiting Scholar)
01/1982-07/1992, Institute of Physics of Belgrade University, Serbia (Sr. Scientist, Professor of Physics)
09/1979 -12/1981, Physics Department, City College of C.U.N.Y, New York (Graduate Student)
03/1976 - 08/1979, Institute of Physics of Belgrade University, Serbia (Graduate Student)

Professional Societies, Affiliations, Synergies, Awards:

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; Member of American Chemical Society, since 2002; Member of American Association of University Professors, since 1994
Consultant: International Atomic Energy Agency (IAEA, Vienna), 1988-present (atomic collision in plasmas, plasma material interactions)
Member of Editorial Boards: J. Atom. Molec. Opt. Phys. (Hindawi); Conference Papers in Physics; J. Nanomed.& Nanotec. (OMICS)
Guest Editor: *Nanotechnology IOP), Physica Scripta, Nanoscale Research Letters, Springer , Nuclear Instruments and Methods in Phys. Res. B, etc.*
Books (Co-Editor of 10 books on topical issues like are *Nanotechnology for Electronics, Photonics, and Renewable Energy, Atomic and Molecular Data and Their Application, The Physics of Ionized Gases*, etc.)
Chair: *Summer School of 4th International Conference on Nano-Giga Chalenges 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.
Co-Chair: IISC-18, Gatlinburg, TN (2010), 3rd ICAMDATA, Gatlinburg, TN, (2002); Nano-Giga Challenges in Electronics, Phoenix, AZ (2007), Hamilton (Canada, 2009), Moscow (2011); 14th Canadian Semiconductor Conference (2009)**,** XII SPIG, Sibenik, 1984), CDAMP, Brioni, 1988),
Program Committees: 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), XII SPIG (1984), XIII SPIG (1986), CDAMP (1988), etc.

- ***PI/PD of recent awarded projects :*** *NIH funded project, DNA Sequencing Through Quadrupole Gate (2008-2011);*ORNL Seed LDRD project "Modeling of the Plasma-Material Interface" (2010-2011); *ORNL Seed LDRD project "Irradiation Effects in the Graphene Based Electronics"; *ORNL Seed LDRD project "Excited State Quantum-Classical Molecular Dynamic" (2005-06); *Joint IAEA-ORNL Coordinated Research Projects: "Data for surface composition dynamics relevant to erosion processes" (2007-2010); *"Atomic and molecular data for fusion plasma diagnostics" (2001-2005), *"Atomic Data for fusion divertor modeling" (1997-2000); *ORNL-CNMS user-project **"**Plasma-Surface Interface in ITER: Interactions, Chemistry, Sputtering", 2008-2009; US DOE OFES Grants "The Controlled Fusion Data Center", "Fusion Atomic Theory" (2001-2012), Co-PI on a number of funded grants.

Ten recent publications (out of >200 peer-reviewed publications, >70 invited talks, >2600 cit.)

- P. S. Krstic, J. P. Allain, C. N. Taylor, J. Dadras, S. Maeda, K. Morokuma, J. Jakowski, A. Allouche, and C. H. Skinner, *Deuterium uptake in magnetic-fusion devices with lithium-conditioned carbon walls*, PHYSICAL REVIEW LETTERS (2013, accepted).
- JH Park, J He, B Gyarfas, S Lindsay, **PS Krstić**, *DNA translocating through a carbon nanotube can increase ionic current*, NANOTECHNOLOGY **23**, 455107 (2012), http://dx.doi.org/10.1088/0957-4484/23/45/455107 *(IOP publisher's pick October 2012)*
- Park, J. H., Guan, W., Reed, M., and Krstić, P. S., *Tunable Aqueous Virtual Micropore*, SMALL 8, 907 (2012), http://dx.doi.org/10.1002/smll.201101739
- Vence, Nicholas; Harrison, Robert; **Krstic, Predrag**, *Attosecond electron dynamics: A multiresolution approach*, PHYSICAL REVIEW A **85** (3): 0303403 (2012), doi:10.1103/PhysRevA.85.033403
- Ehemann R. C.; **Krstic P. S.**; Dadras J.; et al., *Detection of hydrogen using graphene*, NANOSCALE RESEARCH LETTERS **7**, 198 (2012), http://dx.doi.org/10.1186/1556-276X-7-198
- Pei Pang, Jin He, Jae Hyun Park, **Predrag** S. **Krstić**, and Stuart Lindsay, *Origin of Giant Ionic Currents in Carbon Nanotube Channels*, ACS NANO 5, 7277–7283 (2011), http://dx.doi.org/10.1021/nn202115s
- Guan WH, Joseph S, Park JH, et al.**,** *Paul trapping of charged particles in aqueous solution***,** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA (PNAS) **108 (23),** 9326-9330 (2011), http://dx.doi.org/10.1073/pnas.1100977108
- Cao, Di ,Pang, Pei, He, Jin , Luo, Tao , Park, Jae Hyun , **Krstić**, **Predrag** S , Nuckolls, Colin , Tang, Jinyao, Lindsay, Stuart , *Electronic Sensitivity of Carbon Nanotubes to Internal Water Wetting*, ACS NANO **5**, 3113-3119 (2011), http://dx.doi.org/10.1021/nn200251z
- Haitao Liu, Jin He, Jinyao Tang, Hao Liu, Pei Pang, Di Cao, **Predrag Krstić**, Sony Joseph, Stuart Lindsay and Colin Nuckolls, *Translocation of Single-Stranded DNA through Single-Walled Carbon Nanotubes*, SCIENCE **327** #5961, 64-67 (2010), http://dx.doi.org/10.1126/science.1181799
- Branton D, Deamer DW, Marziali A, Bayley H, Benner SA, Butler T, Di Ventra M, Garaj S, Hibbs A, Huang X, Jovanovich SB, **Krstić PS**, Lindsay S, Ling XS, Mastrangelo CH, Meller A, Oliver JS, Pershin YV, Ramsey JM, Riehn R, Soni GV, Tabard-Cossa V, Wanunu M, Wiggin M, and Schloss JA, *The potential and challenges of nanopore sequencing*, NATURE BIOTECHNOLOGY **26**, 1146-1153 (2008), http://dx.doi.org/10.1038/nbt.1495.
- **Krstić PS**, Reinhold CO, Stuart S, *Chemical sputtering from amorphous carbon under bombardment by deuterium atoms and molecules*, NEW J. PHYS (IOP) **9**, 209 (2007), http://dx.doi.org/10.1088/1367-2630/9/7/209
- Glassgold, AE, **Krstić, PS**, Schultz, DR, *H^++H scattering and ambipolar diffusion heating*, ASTROPHYSICAL JOURNAL **621**, 808-816 (2005), http://dx.doi.org/10.1086/427686
- Macek, JH, **Krstić, PS**, Ovchinnikov, SY, *Regge oscillations in integral cross sections for proton impact on atomic hydrogen*, PHYSICAL REVIEW LETTERS *93*, 183203 (2004). http://dx.doi.org/10.1103/PhysRevLett.93.183203
- Savin, DW, **Krstić, PS**, Haiman, Z, et al., *Rate coefficient for H++H-2 (X-1 Sigma(+)(g),v=0, J=0) -> H(1s)+H-2(+) charge transfer and some cosmological Implications*, ASTROPHYSICAL JOURNAL **606**, L167-L170 (2004). http://dx.doi.org/10.1086/421108

Recent Collaborators:

J.P. Allain, Purdue University, Purdue, IN, A. Allouche, CNRS & University of Provence, Marseille, France, J. Brooks, Purdue University, Purdue, IN , J. Burgdorfer, Technische Universitat Wien, Austria, R.E.H. Clark, IAEA, Vienna, Austria, P. Cummings, Vanderbilt University and ORNL, , J. Dadras, UTK/ORNL, R.C. Ehemann, MTSU, YN, R. Goulding, ORNL, W. Guan, Yale University, New Haven, CT, J. Harris, ORNL, R. J. Harrison, ORNL, Jin He, Arizona State University, Phoenix, AZ, D. Hillis, ORNL, E. Hollmann, UCSD, San Diego, CA, D. Humbert, IAEA, Vienna, Austria, C.C. Havener, ORNL, W. Jacob, Max-Planck-Institut für Plasmaphysik, Garching, Germany, J. Jakowski, NICS, University of Tennessee, TN, R.K. Janev, Macedonian Academy of Science, Macedonia, J. Lee, ORNL, S. Lindsay, Arizona State University, Phoenix, AZ, S. Joseph, ORISE, Oak Ridge, TN, J.H. Macek, University of Tennessee, Knoxville, TN, F.W. Meyer, ORNL, K. Morokuma, Kyoto University, Japan, S.Y. Ovchinnikov, University of Tennessee, Knoxville, TN, J.H. Park, ORISE, Oak Ridge, TN, M. A. Reed, Yale University, New Haven, CT, C. Reinhold, ORNL, D.W. Savin, Columbia U., New York, NY, D.R. Schultz, ORNL, C. Skinner, Princeton Plasma Physics Laboratory, Princeton, NJ, D. Stotler, Princeton Plasma Physics Laboratory, Princeton, NJ, S. Stuart, Clemson University, Clemson, SC, Z. Yang, Purdue University, Purdue, IN, J.C. Wells, ORNL, X.–G. Zhang, ORNL, R. Zikic, ORISE, Oak Ridge, TN

Recent Graduate students and Postdgraduate Scholars (out of total number of 11):

R.C. Ehemann, MTSU, S. Joseph, ORISE, Oak Ridge, TN, , J.H. Park, ORISE, Oak Ridge, TN , R. Zikic, ORISE, Oak Ridge, TN, J. Dadras, University of TN, Knoxville, N. Vence, University of TN, Knoxville.