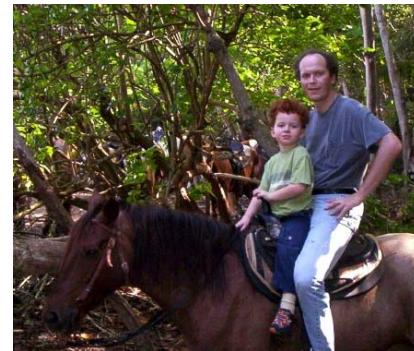


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Chemist

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Professional Experience

- **2007-2009.** Chemist with the Heavy Elements and Separations Group, Chemical Sciences and Engineering Division, ANL
- **2000-2007.** Chemist with the Radiation and Photochemistry Group, Chemistry Division, ANL
- **1996-2000.** Assistant Chemist with the Radiation and Photochemistry Group, Chemistry Division, ANL.
- **1992-1996.** Postdoctoral Appointee with the Radiation and Photochemistry Group, Chemistry Division, ANL
- **1991-1992.** Postdoctoral Fellow at the Department of Chemistry, Queen's University, Kingston, Ontario, Canada.
- **1990-1991.** Visiting Fellow at the Physical Chemistry Laboratory, University of Oxford, Oxford, UK

Current Projects and Support

- Radiation chemistry of ionic liquids for advanced fuel cycle systems (BES DOE)
- Chemistry of martian soils (MFRP/NASA)
- Ionic liquids for technetium removal (AFCI/ NE DOE)
- Surface modified porous glass for sequestration of radionuclides into a collapsible waste form (AFCI/NE DOE)
- Magnetic microspheres for microfluidics and nuclear forensics (DTRA/DOD);
- Advanced detection schemes for rapid nuclear forensics analyses (SI LDRD)
- In-field detection of radionuclides in biosamples (CDC/NIH)

Education

- Ph.D., Chemistry. Institute of Chemical Physics, Russian Academy of Sciences, Moscow, USSR, 1990.
- B. S. and M. S. in Chemistry, Department of Chemistry, Moscow State University, Moscow, USSR. Summa cum laude. 1987

Career Activities & Highlights

- Presented numerous seminars and invited talks at national meetings and international conferences
- Project manager for NE DOE
- Member of the American Physical Society, American Chemical Society, International EPR society
- Reviewer for J. Am. Chem. Soc., Proc. Natl. Acad. Sci., J. Phys. Chem., J. Chem. Phys., J. Appl. Phys., Appl. Phys. Lett., Molec. Phys., Chem. Phys.,

- Chem. Phys. Lett., Phys. Chem. Chem. Phys., Res. Chem. Intermed., Rev. Sci. Instr., J. Photochem. Photobiol., J. Non-Cryst. Solids, Radiat. Phys. Chem.; endorser at arXiv.org.
- Proposal reviewing for NSF, DOE, NASA, and American Petroleum Fund.
 - EPR society YI Award , 1999
 - British Council Award, 1990

Publications & Patents

- Publications : 115
- Citations: > 1200
- h-index: 21
- Publications *in press* (2009): 4
- Patents, Patent Applications & Inventions: 1

Recent publications (2007+)

1. I. A. Shkrob, T. W. Marin, D. C. Stepinski, G. F. Vandegrift, J. V. Muntean, and M. L. Dietz, *Extraction and reductive stripping of pertechnetate from spent nuclear fuel waste streams*, Sep. Sci. Technol. (2009) submitted.
2. I. A. Shkrob, S. D. Chemerisov, and T. W. Marin, *Photocatalytic decomposition of carboxylated organic molecules and biomarkers on light-exposed martian regolith and its relation to methanogenesis*, Astrobiology (2009) submitted.
3. I. A. Shkrob, *Deprotonation and oligomerization in photo-, radiolytically, and electrochemically induced redox reactions in hydrophobic alkylimidazolium ionic liquids*, J. Phys. Chem. B (2009) submitted.
4. I. A. Shkrob, M. D. Kaminski, C. J. Mertz, P. Rickert, and K. Rahimian, *Magnetic extraction, detection, and isotope analysis using microspheres for microfluidic applications*, Sep. Sci. Technol. 2009 (in press)
5. I. A. Shkrob, M. D. Kaminski, C. J. Mertz, P. Rickert, and K. Rahimian, *Sequestration, fluorometric detection, and mass spectroscopy analysis of lanthanide ions using surface modified magnetic microspheres*, J. Am. Chem. Soc. 2009, doi [10.1021/ja9035253](https://doi.org/10.1021/ja9035253)
6. I. A. Shkrob and S. D. Chemerisov, *Light induced fragmentation of polyfunctional carboxylated compounds on hydrated metal oxide particles: from simple organic acids to peptides*. J. Phys. Chem. C 113 (2009) 17138-17150.
7. I. A. Shkrob and J. F. Wishart, *Charge Trapping in Imidazolium Ionic Liquids*, J. Phys. Chem. B 113 (2009) 5582-5592.
8. I. A. Shkrob, *Pump-probe polarized transient hole burning (PTHB) dynamics of hydrated electron revisited*, Chem. Phys. Lett. 467 (2008) 84-87.
9. I. A. Shkrob and T. W. Marin, *Electron solvation by clustered H-bond complexes of water with tributylphosphate*, Chem. Phys. Lett. 465 (2008) 234-237.
10. C. G. Elles, I. A. Shkrob, R. A. Crowell, E. C. Landahl, D. A. Arms, and E. M. Dufresne, *Transient x-ray absorption spectroscopy of hydrated halogen atom*, J. Chem. Phys. (Communications) 128 (2008) 061102.
11. I. A. Shkrob, S. D. Chemerisov, and J. F. Wishart, *The Initial Stages of Radiation Damage in Ionic Liquids and Ionic Liquid-Based Extraction Systems*, J. Phys. Chem. B 111 (2007) 11786.

12. I. A. Shkrob, *On the nature of infrared absorbing trapped electron center in low-temperature ice-I_n*, Chem. Phys. Lett. 443 (2007) 289.
13. I. A. Shkrob, W. J. Glover, R. E. Larsen, and B. J. Schwartz, *The structure of the hydrated electron. Part 2. A mixed quantum/classical molecular dynamics (MQC MD) - embedded cluster density functional theory: single excitation configuration interaction (DFT:CIS) study*, J. Phys. Chem. A 111 (2007) 5232.
14. I. A. Shkrob, *The Structure of Hydrated Electron. Part 1. Magnetic Resonance of Internally Trapping Water Anions: A Density Functional Theory Study*, J. Phys. Chem. A 111 (2007) 5223.
15. C. G. Elles, I. A. Shkrob, R. A. Crowell, and S. E. Bradforth, *Excited state dynamics of liquid water: Insight from the dissociation reaction following two-photon excitation*, J. Chem. Phys 126 (2007) 164503.
16. **D. A. Oulianov, R. A. Crowell, D. J. Gosztola, I. A. Shkrob, O. J. Korovyanko, and R. C. Rey-de-Castro, Ultrafast Pulse Radiolysis Using a Terawatt Laser Wakefield Accelerator, J. Appl. Phys. 101 (2007) 053102.**