IGOR V. SEVONKAEV

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OBJECTIVE

Seeking for a position in R&D as innovation, technology, or engineering research manager. My interests cover challenging projects of both large and small scales, where I can utilize my skills in physics and advanced materials science, as well as communication and project management. My interests spread, but not limited to the conventional and alternative sources of energy (such as fuel cell, photovoltaic, hydrogen storage, renewable energy), also biomedical, semiconductor, and novel advanced materials topics.

EDUCATION

2004—2009 PhD student in Physics (GPA 3.8)
Clarkson University, Potsdam, NY
Thesis title: *Size and Shape of Uniform Particles Precipitated in Homogeneous Solutions.*

2002—2003 MS in Physics with Distinction (equivalent GPA 3.9)
East-Ukrainian National University, Lugansk, Ukraine
Thesis title: *Mechanisms of Self-Regulation in Biological Systems.*

WORK EXPERIENCE

2009—current: Research associate, Clarkson University, Potsdam, NY.

- Design and lab setup, data processing and analyses.
- Research investigation and analytical analyses (outlined below).
- Critical thinking and ability to drive and take responsibility for projects within tight deadlines.

2004—2009: Research assistant, Clarkson University, Potsdam, NY.

EXPERIENCE AND EXPERTISE

Professional

Involved in industrial projects on design and preparation of materials for fuel-cell and photovoltaic applications (size control of noble metal particles, and preparation of complex-structured catalysts for automotive applications). Involved in development and optimization of wetting regimes for the highly concentrated particle systems. Research achievements lead to several patent publications.

Have experience developing metallic (Au, Ag, Pt, Ir, Pd, etc.) and non-metallic (PbS, MgF2, etc.) particles, as well as metal oxides and other related materials of various sizes and shapes for practical applications. Also perform experimental design and analytical characterization of the materials.

TECHNICAL EXPERIENCE

Analytical skills, characterization, and data interpretation

- Surface morphology characterization by Scanning Electron Microscopy.
- Material identification, by Energy Dispersive X-Ray Spectroscopy.
- Particle characterization and identification by Transmission Electron Microscopy and Selected Area Electron Diffraction (including CEBD).
- Particle identification, crystal structure determination, and characterization by X-Ray Powder Diffraction.
- Electro kinetic analysis, Electrophoretic light scattering.
- Thermal gravimetric analysis.

Computer and programming skills

- Image and data processing software (digital micrograph, Image-J, TOPAZ, etc.)
- Computer programming and computational advanced knowledge (MS Visual C++, HTML, PHP., Mathcad, MatLab, Maple, CAD).

RESEARCH AND EXTRA-CURRICULUM INTERESTS

- Took a practical course on "Fabrication of Micro Scale Devices" at Clarkson University.
- Attended Cornell Nanoscale Science & Technology Facility (CNF) on “Technology & Characterization at the Nanoscale” at Cornell University.
- Taking Coursera.org Classes (online courses from the top universities in the world): Computational Methods for Data Analysis, High Performance Scientific Computing, Computer Architecture,

BUSINESS AND ADMINISTRATION

2014: Rewarded with the 3rd place at the North Country Regional Business Plan Competition, Plattsburg, NY.

2013: Rewarded with the 3rd place at the North Country Regional Business Plan Competition, Potsdam, NY.

2013: Certified SBA course, Reh Center for Entrepreneurship, Clarkson University, Potsdam, NY.

TEACHING EXPERIENCE

2005—2006: Physics freshmen course, Clarkson University, Potsdam, NY.

2003 Spring: Computer Sciences junior course, Polytechnic College, Lugansk, Ukraine.

HONORS AND ACTIVITIES

2009 –	Member of American Chemical and Physical Societies
2007	Distinguished Graduate Student Award, Clarkson University.
1998—2003	Class President at East-Ukrainian National University.
2003—2004	Student Association Vice-President for Science at East-Ukrainian National University.
1998	Honored as a Distinguished Student of the city of Lugansk, Ukraine.

PUBLICATIONS AND PATENTS

- D. Goia, E. Robert, I. Sevonkaev **Patent** application, *Manufacture of Hollow Catalysts*. Submitted.
- D. Goia, M. Lopez, I. Sevonkaev **Patent** application, *Manufacture of Core-Shell Catalysts*. Submitted.
- M. Lopez, D. Goia, I. Sevonkaev **Patent** application for *Manufacture of Base Metal Nanoparticles Using a Seed Particle Method*, WO 2012/123442 A1, US 2012/0238443 A1.
- Pal, A., Sevonkaev, I., Bartling, B., Rijssenbeek, J. & Goia, D. V. Dipentaerythritol: a novel additive for the precipitation of dispersed Ni particles in polyols. *RSC Advances* 4, 20909 (2014) doi:10.1039/c4ra01464b
- Lu, L., Sevonkaev, I., Kumar, A. & Goia, D. V. Strategies for tailoring the properties of chemically precipitated metal powders. *Powder Technology* 261, 87–97 (2014) doi:10.1016/j.powtec.2014.04.015
- Tokarev, A., Lee, W.-K., Sevonkaev, I., Goia, D. & Kornev, K. Sharpening surface of magnetic paranematic droplets. *Soft Matter* (2013). doi:10.1039/C3SM52655K
- 1.Sevonkaev, I. V., Kumar, A., Pal, A. & Goia, D. Mechanism of polyol assisted ccp to hcp crystal phase conversion of nickel particles. *RSC Adv.* (2013). doi:10.1039/C3RA46138F
- Kumar, A., Sevonkaev, I. & Goia, D. V. Synthesis of selenium particles with various morphologies. *Journal of Colloid and Interface* Science 416, 119–123 (2014), doi:10.1016/j.jcis.2013.10.046
- Sevonkaev, I., Privman, V. & Goia, D. Synthesis of dispersed metal particles for applications in photovoltaics, catalysis, and electronics. *J Solid State Electrochem* **17,** 279–297 (2013).
- Sevonkaev, I., Privman, V. & Goia, D. Growth of highly crystalline nickel particles by diffusional capture of atoms. *J. Chem. Phys* **138,** 014703 (2013).
- Farrell, B. P., Sevonkaev, I. V. & Goia, D. V. Preparation of Dispersed Spherical Platinum Particles with Controlled Size and Internal Structure. *Platinum Metals Review* **57,** 161–168 (2013).
- Sevonkaev, I., Halaciuga, I., Goia, D. V. & Matijević, E. Distribution of density in spherical colloidal particles by transmission electron microscopy. *Colloids and Surfaces A: Physicochemical and Engineering Aspects* **354,** 16–21 (2010).
- Sevonkaev, I. & Privman, V. Shape Selection in Synthesis of Colloids and Nanoparticles. *World J. Eng., Suppl.: Proc. Conf.* **ICCE-17,** P909 (2009).
- Sevonkaev, I. & Matijević, E. Formation of Magnesium Fluoride Particles of Different Morphologies. *Langmuir* **25,** 10534–10539 (2009).
- Sevonkaev, I. V. & Katz, E. Biosensors based on immobilized insects fragments. *J Solid State Electrochem* **12,** 7–14 (2008).
- Sevonkaev, I., Goia, D. V. & Matijević, E. Formation and structure of cubic particles of sodium magnesium fluoride (neighborite). *Journal of Colloid and Interface Science* **317,** 130–136 (2008).

FEATURED PRESENTATIONS

- Gordon Research Conference (Fuel cells), *Synthesis of Au/Pd/Pt Core-Shell-Shell Catalysts for PEM Fuel Cells*, August 2012.
- Center for Advanced Materials Processing Annual Technical Meeting Albany, NY, *Preparation of Nickel Nanocrystalline Precursors by Diffusional Capture of Atoms for Electrochemical Applications*, May 2012.
- Center for Advanced Materials Processing Annual Technical Meeting Albany, NY, SEM *Characterization of Core-Shell Type Materials*, May 2011.
- Gordon Research Conference (Fuel cells), *Preparation and Characterization of Core-Shell Au/Pt PEM Fuel Cells Catalysts*, August 2010.

REFERENCES

Dan V. Goia

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