

PAYAM MINOOFAR, PH. D.

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Objective: To attain a challenging position in a medium-sized to large corporation as a scientist, senior scientist or project manager.

Synopsis

- Over six years of experience in the study of luminescent materials destined for photovoltaics and LEDs: from the synthesis active materials to the assembly and the characterization of the final device.
- Expertise in spectroscopy, materials chemistry, formulation, combinatorial methods, luminescent materials, analytical methods, polymer processing, clinical chemistry, technical writing and public speaking.
- Over 17 years of work and leadership experience in many industries.
- Proven ability to work in multidisciplinary settings, in foreign countries and in foreign languages.
- Superlative communication, computer and organizational skills.

Skills

- Luminescence spectroscopy of materials (laser dyes, proteins, Ir complexes and lanthanide complexes) with laser and conventional light sources. DFT studies and time resolved (μs and fs resolution) spectroscopy of inorganic and organic lumophores.
- Expertise with the Igor Pro data analysis software in the reduction, the statistical analysis and the visualization of large, complex data sets.
- Combinatorial approach to materials and device development: design of experiment principles, high throughput experimental methods and data acquisition, and statistical analysis (e.g., principle components analysis).
- Fluency with all common commercial software: all Microsoft Office components, MS Access, Windows, Macintosh OS X, SAP Crystal Reports, many flavors of Unix/Linux and other software titles for graphics, organization & interfacing with hardware.
- SEM, TEM, x-ray diffraction and x-ray fluorescence in the context of characterizing materials.
- Analytical instrumentation: AA spectrometry, GC, GC/MS, HPLC (normal & reverse phase, GPC/GFC), UV-Vis, MALDI-MS, immunoassays and FTIR in the context of materials characterization, environmental and clinical (GLP/GMP) laboratories and proteomics.
- Bench chemistry: synthesis of organic and inorganic compounds, manipulation of air sensitive compounds, sample preparation for quantitative trace analysis.
- Preparation and presentation of technical reports, SOPs, manuscripts and presentations for technical and non-technical audiences.
- Fluency in English and Farsi, proficiency in Hebrew, German and French.
- Over thirteen years of experience working in multidisciplinary projects with engineers, physicists, physicians and administrators.

Experience

June 2011-Present:

Research Scientist Teledyne Scientific & Imaging, Thousand Oaks, CA

Publicly Traded R & D Company **Solicitation & Fulfillment of Research Contracts**

- Design, perform and manage experiments to produce contract deliverables.
- Contribute to the solicitation and procurement of contracts from public and private customers.
- Current areas of research: layered magnetic materials for microinductor applications, development of more efficient microbial fuel cells, development of cadmium-free electrical contactors.
- Research carried out under the primary sponsorship of the Departments of Defense and Energy (DARPA, ARPA-E, Army, Navy, CERDEC, ARL, NRL, etc.), Rockwell Automation and other Teledyne Technologies business units.

August 2008-Present:

Adjunct Faculty Oxnard College, Oxnard, CA.

Community college **Chemistry Instructor**

- Prepare and deliver lectures and assign homework.
- Write, administer and grade exams.
- Supervise and grade laboratory experiments.
- Develop a modified chemistry curriculum enriched with history of chemistry and philosophy of science.

March 2008-April 2011:

Scientist Meissner Filtration Products, Camarillo, CA.

Privately held manufacturer **Development of Micro- and Ultrafiltration Products**

- Implement combinatorial approach to polymer formulation through careful application of design of experiment principles.
- Optimize wet and wet/dry spinning of polymer hollow fiber membranes.
- Characterize hollow fibers with scanning electron microscopy (SEM), FTIR, UV-Vis spectrophotometry and size exclusion chromatography (HPLC).
- Codify new procedures in SOPs and prepare documentation for the process of qualifying and marketing products.
- Develop, validate, implement and automate size exclusion chromatography (HPLC) methods.
- Collaborate with engineers in designing mechanical and electronic components required by the process.
- Acquire and evaluate new polymers from vendors.
- Maintain and expand R&D laboratory.

- August 2006-August 2007:* **Chemical Engineer** APIC Corp, Culver City, CA.
Semiconductor and photonic startup **Development of an Explosives Detector**
- Designed and characterized preconcentrators via gas chromatography.
 - Chemically characterized and integrated a commercial preconcentrator acquired from Sandia National Labs into our compact photoacoustic spectrometer which uses quantum cascade lasers.
 - Numerically simulated the expected output with the profile of the quantum cascade lasers.
 - Designed, developed and chemically characterized a vapor generator for high explosives.
 - Chemically characterized the final QCL photoacoustic spectrophotometer.
 - Wrote and submitted proposals for government grants, interacted with government sponsors and assured compliance.
- April 2004-October 2007:* **Scientist** John Wayne Cancer Institute. Santa Monica, CA.
Private research institution **Proteomics of Primary Hyperparathyroidism**
- Microtomed, stained and performed laser capture microdissection (LCM) on human tissue.
 - Processed and obtained the surface enhanced laser desorption ionization (modified MALDI) mass spectra of captured cells.
 - Analyzed results with classification and regression trees (CART).
 - Led the collaboration with Drs. Armando Giuliano (John Wayne Cancer Institute), Dave S. Hoon (John Wayne Cancer Institute) and Martin Eisenacher (Ruhr Universität Bochum, Germany).
- November 2004-December 2005:* **Postdoctoral Fellow** Univ. v. Amsterdam. Netherlands & Uni-Münster. Münster, Germany.
Photophysical characterization of luminescent materials and devices
- Steady-state spectroscopy, transient absorption and fast (sub-picosecond) dynamics of luminescent materials (small organic molecules, cyclometalated Iridium complexes, supramolecular zinc assemblies, and conducting polymers) designed for higher efficiency electroluminescent devices.
 - Fabrication and spectroscopic characterization of electroluminescent devices, LEDs, (sponsored by Philips Electronics).
 - Quantum chemical (Gaussian 03) treatment of the electronic structures of cyclometalated iridium complexes.
 - In collaboration with Professors Michael Schmittel (Uni-Siegen, Germany), Gianluca Farinola (Uni-Bari, Italy) and Drs. Igor Avilov and Jérôme Cornil (Université Mons-Hainaut, Belgium).
- September 1998-February 2004:* **Doctoral Candidate** Department of Chemistry. University of California, Los Angeles.
Synthesis and characterization of functional sol-gel materials
- Synthesized nanostructured silicate sol-gel thin films containing lanthanide complexes, laser dyes, and conducting polymers.
 - Designed, synthesized and characterized functional sol-gel thin films: thin films in which selective placement of luminescent dopants transported energy from one region to another region through resonance energy transfer (RET). Deduced information about the location of the dopants and their distribution in the films from quantitation of energy transfer using the Förster model.
 - Characterized luminescent, mesostructured silicate thin films with x-ray diffraction, luminescence, excitation and UV-Vis absorption spectroscopy with conventional and laser light sources, and time domain and frequency domain luminescence lifetime measurements.
 - Performed two-photon photodeposition of gold nanoparticles in sol-gel matrices.
 - Designed and constructed a humidity control chamber for improved film synthesis.
 - Characterized luminescent vaults (eucaryotic ribonucleoprotein particles).
 - Collaborations with Professors Bruce Dunn (UCLA Dept. of Materials Science) and Lenny Rome (UCLA School of Medicine).
- April 1996-September 1998:* **Research Associate** John Wayne Cancer Institute. Santa Monica, CA.
Private Research Institution **Etiology and treatment of disorders of bone metabolism**
- Completed the clinical analysis of a 50-center international study of the efficacy of salmon calcitonin therapy in the treatment of osteoporosis for Sandoz Pharmaceuticals. Performed radioimmunoassays on serum specimens from the 50 centers, gathered and statistically analyzed data, and acted as a liaison among the research centers and the sponsor.
 - Conducted a study of the relationship between declining testosterone levels in elderly men and prostate cancer patients and the increased incidence of osteoporosis in those populations.
 - Developed a new test of parathyroid gland function.
 - Acted as site coordinator for a clinical trial of a bisphosphonate patch in Paget's disease of bone patients for Novartis Pharmaceuticals.
 - Contributed to the implementation of quantitative computed tomography at St. John's Hospital.
 - Prepared manuscripts, wrote clinical protocols and interacted with sponsors and IRBs to assure compliance.
- August 1994-December 1995:* **Research Associate** McGaw, Inc. Irvine, CA.
Pharmaceutical Manufacturer **Toxicology of drugs and pesticides**
- Extracted radiolabeled drug and pesticide metabolites from homogenized plant and animal tissues, and prepared extracts for instrumental analysis.
 - Developed methods, characterized and identified metabolites through HPLC and GC-MS in compliance with GLP guidelines as part of toxicology studies required by the FDA and EPA.
 - Prepared reports.

June 1992-August 1994: **Chemist** Chem-Tech Systems & City of Los Angeles, Los Angeles, CA.

Environmental Labs **Chemical Analysis of Wastewater**

- Applied numerous analytical methods to the quantitative assessment of wastewater and treated water toward environmental regulations and to assess treatment processes.

March 1989-December 1991: **Undergraduate Researcher** Department of Chemistry. University of California, Berkeley.

Total Synthesis of Natural Product Analogs

Performed the total synthesis of inositol triphosphate analogs via Diels-Alder reaction with activated dienes, radical chemistry on sugars, and synthesis from 1,4-cyclohexadiene.

Professional Activities and Education

- August, 2011: "Methods Development, Validation Procedures, and Regulatory Compliance Issues", an American Chemical Society Short Course on all technical and regulatory aspects of analytical chemistry in the pharmaceutical setting.
- January 01, 2012 - Present: California Los Padres Section of the American Chemical Society, Member of the Executive Committee. www.lospadresacs.org
- 1994-Present: American Chemical Society, Member.

Other Experience

January-February 2006: **Consultant** Wavemetrics, Inc. Portland, OR.

Privately held software corporation **Development of a Programming Manual for Scientists**

Wrote an introductory programming manual for the data processing software IGOR Pro, payam.minoofar.com/igor/

September 1998-December 2001: **Teaching Assistant** Department of Chemistry, UCLA.

- Prepared and delivered lectures, devised, proctored and graded exams and quizzes in general, organic, and advanced inorganic chemistry discussion sections of 10 to 30 students.
- Taught and organized courses in general and organic laboratory techniques.
- Instructed the use of HPLC, GC-MS, XRF, and AA spectrometry methods and the theory and application of statistical analysis in an advanced instrumental analysis laboratory course.
- Mentored three undergraduate students in independent research.

Education

University of California, Los Angeles. **Doctor of Philosophy, Inorganic Chemistry. February 2004**

Dissertation Title: "Confinement of Luminophores in Mesostuctured Sol-Gel Thin Films: Deliberate Placement of Lanthanides and Laser Dyes and Quantitation of Energy Transfer", Jeffrey I. Zink, advisor.

University of California, Berkeley. **Bachelor of Science, Chemistry. May 1992**

Publications

- Avilov, I.; **Minoofar, P.**; Cornil, J.; De Cola, L.; "Influence of substituents on the energy and nature of the lowest excited state of heteroleptic phosphorescent Ir(III) complexes: a joint theoretical and experimental study" *Journal of the American Chemical Society*, **2007**, 129(6), 8247-8258.
- Kickhoefer, V.; Garcia, Y.; Mikiyas, Y.; Johansson, E.; Zhou, J.; Raval-Fernandes, S.; **Minoofar, P.**; Zink, J.; Dunn, B.; Stewart, P.; Rome, L.; "Engineering of vault nanocapsules with enzymatic and fluorescent properties" *Proceedings of the National Academy of Sciences* **2005**, 102(12), 4348-4352.
- **Minoofar, P.**; Dunn, B.; Zink, J.; "Multiply Doped Nanostructured Silicate Sol-Gel Thin Films: Spatial Segregation of Dopants, Energy Transfer, and Distance Measurements" *Journal of the American Chemical Society* **2005**, 127(8), 2656-2665.
- **Minoofar, P.**; Hernandez, R.; Franville, A.; Chia, S.; Dunn, B.; Zink, J.; "Strategies for spatially separating molecules in mesostructured sol-gel silicate films" *Journal of Sol-Gel Science and Technology* **2003**, 26(1-3), 571.
- Garcia-Macedo, J. A., Valverde, Cruz, D.; Franco, A.; Zink, J. I.; **Minoofar, P.**; "Structure and Polyphenylenevinylene Concentration Effect on the Photoconductive Response from Mesostructured Silica Films" *Journal of Physical Chemistry B* **2003**, 107, 2249-2252.
- **Minoofar, P.**; Franville, A.; Chia, S.; Hernandez, R.; Dunn, B.; Zink, J.; "Placement and Characterization of Pairs of Luminescent Molecules in Spatially Separated Regions of Nanostructured Thin Films" *Journal of the American Chemical Society* **2002**, 124(48), 14388.
- Hernandez, R.; Franville, A.; **Minoofar, P.**; Dunn, B.; Zink, J.; "Controlled Placement of Luminescent Molecules and Polymers in Mesostructured Sol-Gel Thin Films" *Journal of the American Chemical Society* **2001**, 123, 1248.
- Singer, F.; **Minoofar, P.** "Bisphosphonate Therapy of Osteoporosis", in *The Osteoporosis Primer*; Henderson, J., Goltzman, D., Eds.; Cambridge University Press: New York, **2000**.
- Singer, F.; **Minoofar, P.**; "Bisphosphonates in the Treatment of Disorders of Mineral Metabolism" *Advances in Clinical Endocrinology and Metabolism* **1995**, 6, 259.

Invited Lectures

"Following primary hyperparathyroidism from surgery to proteomic analysis", 3rd Münster Conference on Single Analysis, December 5, 2006, Münster, Germany.

Presentations

- Garcia-Macedo, J. A.; Cruz, D.; Valverde, G.; Zink, J.I.; Hernandez, R.; Minoofar, P.; "Charge transport under illumination in mesoporous continuous films." Proceedings of SPIE-The International Society for Optical Engineering, 2002, 4465(Organic Photovoltaics II): 137-142.
 - Minoofar, P.; Zink, J. I.; "Multiple Inclusion and Energy Transfer in Mesostructured Sol-Gel Thin Films", Poster presented at the meeting of the Materials Research Society, April 2002, San Francisco, California.
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References

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