

Dominique Ingato

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Education

The Henry Samueli School of Engineering, University of California•Irvine, Irvine, CA

Candidate for PhD in Chemical Engineering (May 2017)

Advisor: Young Jik Kwon

School of Engineering and Applied Science, University of Pennsylvania, Philadelphia, PA

Bachelor of Science in Chemical and Biomolecular Engineering (May 2012)

Second Major: Chemistry

Minor: Nanotechnology

Current Research

Biotherapeutics, UC Irvine - Doctoral Research (Winter 2013 - present), Graduate Researcher

Currently working on projects related to protein therapy and drug delivery. Characterization of system is accomplished *via* SEM, TEM, AFM, DLS, HPLC, NMR and ESI-MS.

Past Research Experience

Biomolecular Electronics, UC Irvine – Fall Rotation (Fall 2012), Graduate Researcher

Synthesized nanowires with a DNA-inspired structure. Designed and synthesized building block monomers for the nanowires. Used a MerMade oligonucleotide synthesizer to assemble nanowires. Purified the nanowires by HPLC and characterized by MALDI-TOF.

Process Engineering, Evonik (Summer 2012), Research Intern

Researched the process of syngas fermentation as well as challenges with optimization and scale-up. Made recommendations for the initial stages of research and scale-up of syngas fermentation at *Evonik*. Wrote a report entitled “Evaluation of Syngas Fermentation” for internal use within the company.

Chemical and Biomolecular Engineering Laboratory, University of Pennsylvania (Sept 2010 – May 2012), Student Researcher

Optimization of the methodology and slurry composition used to make porous and dense tapes for the fabrication of SOFCs.

Worked on developing an efficient process for transforming hydrogen bromide to hydrogen and bromine via ceramic fuel cells with bromide-ion conducting membranes.

Commissariat à l’Energie Atomique: Institut Nanosciences et Cryogénic, MINATEC (Summer 2011), Research Intern

Synthesized single- and double-stranded DNA grafted with tailor-made electron-accepting and electron-donating organic semiconductors. Characterized the optoelectronic properties of the organic semiconductors by PL spectroscopy. Received 3rd Place in the presentation awards at the 2011 MINATEC Intern Symposium.

Process Research and Development, Bristol-Myers Squibb (Summer 2010), Research Intern

Assessed heat transfer during drying at the plant and lab scale to determine the effects of particle properties and drying parameters on heat transfer coefficient. Worked with MATLAB and DynoChem modeling. Wrote an Instructions Guide for the Laboratory ProCept MiPro Dryer for future use at BMS.

Chemical and Environmental Engineering Laboratory, University of Arizona (Summer 2009), Research Intern

Performed and analyzed toxicity tests on nanoparticulate compounds used in semiconductor CMP slurries. Wrote a research paper pending publication upon the completion of related studies done by group members.

Organic Chemistry Laboratory, University of Pennsylvania (2008 - 2010), Student Researcher

Developed methods to purify organic compounds. Aided in the synthesis of organic compounds for use in Magnetic Resonance Imaging.

Awards/Honors

National Science Foundation Graduate Research Fellowship, Spring 2013, national fellowship to fund current research at UCI

National Defense Science & Engineering Graduate Fellowship (*declined*), Spring 2013, national fellowship

Multidisciplinary Design Project Fellowship, Fall 2012, for work on a collaborative, multidisciplinary design project

Graduate Dean’s Recruitment Fellowship, Spring 2012, fellowship for competitive graduate students admitted to UCI

Ruhr Fellow, Summer 2012, German language/internship program for 10 engineering students from Penn, Harvard, Princeton & MIT

MINATEC Intern Symposium – 3rd Place Award, Summer 2011, to recognize outstanding presentations by interns

Edgar Fahs Smith Scholarship, Summer 2011, to pursue studies in chemistry

Stuart W. Churchill Individual Research Prize, Spring 2011, for the rising CBE senior with the most outstanding research report

Vagelos Undergraduate Research Grant, Fall 2010, to recognize and fund current research project with Gorte Group
Catalysis Center for Energy Innovation Fellowship, Fall 2010, for outstanding students to participate in funded research projects
SCI Scholar, Spring 2010, for outstanding students in chemistry and chemical engineering
Penn SEAS Faculty Appreciation Award, Spring 2010, in recognition of academic achievements and leadership
AIChE Freshmen Award Scholarship, Fall 2009, for extraordinary AIChE involvement
SBE Outstanding Student Award, Fall 2009, for leadership within Society for Biological Engineers
National Society of Collegiate Scholars (NSCS), 2009-present, for academic achievement

Leadership Experience

Experience at the University of California, Irvine (Graduate)

Engineers Without Borders @ UC Irvine, (2012 - present) *Kenya Project Co-manager (2012-present)*

Organized group efforts in the design and implementation of a cook stove project in Kenya. Lead research towards the design of efficient cook stoves. Planned build events prior to implementation. Aided in general organization of meetings and events.

Additional Leadership Experience with: Rocket Science Tutors (2012-present)

Experience at the University of Pennsylvania (Undergraduate)

Penn Engineering Research Peer Advisors, (2011-2012) *Co-Founder and Co-President (2011-2012)*

Co-Founded the School of Engineering and Applied Sciences' first research peer-advising program. Led a team of eight student advisors in building a successful organization. Initiated events and programs aimed at increasing awareness of undergraduate engineering research at Penn as well as programs to help undergraduates obtain research positions.

Penn Chapter of American Institute of Chemical Engineers, (2008 - 2012) *President (2009-2010)*

Led a student board in implementing events and programs including a mentorship program and ChemE Car team for UPenn CBE students. AIChE received the 2010 ESAC Recognition Award for the most outstanding Penn engineering organization.

Penn Chapter of Engineers Without Borders, (2008 -2012) *VP of Public Relations (2009-2011)*

Led a subgroup of EWB members in fundraising for water purification and sanitation projects in Cameroon. Raised over \$12,000 by holding fundraisers and applying for grants. Served as Health and Safety Officer during the Winter 2010-2011 water sanitation implementation trip to Cameroon.

Additional Leadership Experience with: Penn Chapter-National Society of Collegiate Scholars (2009-2012), Alpha Phi Omega Service Fraternity (2010-2012), Tutoring Center-Mathematics Tutor (2009), Orientation Peer Advisor (2009-2012), and Penn Symphony (2008-2012)

Scientific Papers¹ and Presentations²

²Ingato D, Cho S, Kemp J, Pedram A, Levin E, Kwon YJ. *Overcoming acquired tamoxifen-resistance through simultaneous delivery of chemotherapeutic tamoxifen and manganese superoxide dismutase silencing agent via acid-responsive core-shell nanoparticles*. (2013), Chao Family Comprehensive Cancer Center Scientific Retreat Poster Session, Palm Springs.

²Aguilar A, Ingato D, Karnani S, Edwards R, Mohraz A, Dunn-Rankin D. *Calibration of a low-cost, portable particle counter for in-field monitoring of cookstove emissions*. (2013), 2013 Regional AIChE Conference, UC San Diego.

¹Ingato D, Tuinier M. *Report: Evaluation of Syngas Fermentation*. (2012), 2012 Ruhr Fellowship Program with Evonik.

^{1,2}Dinh Q, Evangelista B, Ingato D, Leone B. *CELLULOSE TO COKE BOTTLES: Process for converting switchgrass to ethylene glycol* (2012), Penn CBE Product and Process Design Oral Presentations.

^{1,2}Ingato D, Gasparutto D, Pepin-Donat B and Rannou P. *Photo-induced charge carriers in bio-inspired and self-organized Donor-Acceptor (D/A) heterojunctions* (2011), Received 3rd Place award for best presentation at 2011 MINATEC Intern Symposium. Paper has been accepted for publication in *PennScience*. Additional poster presentations at the 2012 Penn Society of Women Engineers' Poster Competition and the 2012 Frontiers at the Chemistry-Biology Interface Symposium at Penn.

²Ingato D, Park J-S, Chen C, Gorte R, Weider N, and Vohs J. *Electrolysis of HBr Using a Bromide-Ion Conductor and Ceramic Electrodes* (2011), 2011 Annual CURF Undergraduate Research Symposium.

²Ingato D, Joshi A, Remy B, Sharma P, and Hsieh D. *Evaluation of Pilot Plant Conical Dryer and Lab ProCept Dryer Data to Assess Heat Transfer Capabilities* (2010), 2010 Bristol-Myers Squibb Intern Symposium.

^{1,2}Ingato D, Field J, Sierra R, and Luna A. *Toxicity of cerium oxide and hafnium oxide nanoparticles to bacteria in anaerobic and aerobic sludge* (2009), 2009 University of Arizona Research Experience for Undergraduates, and poster at National AIChE Conference as part of the undergraduate poster competition.

Teaching Experience

PharmSci 174L Biopharm and Nanomed Lab, UC Irvine, Fall 2013 (Teaching Assistant)

PharmSci 170B Molecular Pharmacology II, UC Irvine, Spring 2013 (Teaching Assistant)

Skills

Laboratory Instruments: Mass spectrometry (ESI-MS, MALDI-MS), Chromatography (HPLC, GC), Nuclear Magnetic Resonance (NMR), Electron microscopy (SEM, TEM), Atomic Force Microscopy (AFM) and X-ray diffraction (XRD)

Engineering Programs: ASPEN, Chem-Bio-Draw, DynoChem and MATLAB

Foreign Languages: intermediate Italian and Spanish