University of Washington Chemical Engineering

RECENT FACULTY HIRES











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At the University of Washington, Chemical Engineering has had great success in hiring the best and the brightest. Three rising-star assistant professors and one distinguished associate professor - Cole DeForest, Vincent Holmberg, Elizabeth Nance and Venkat Subramanian - joined the department over the past year, expanding our strengths in regenerative and nanoscale medicine, functional nanomaterials synthesis and characterization, and computational management of energy storage systems. These faculty will contribute to a vibrant ecosystem where innovative minds tackle some of the world's most pressing societal problems and foster knowledge and solutions for a changing world.



François Baneyx Department Chair and Charles W.H. Matthaei Professor

2014-2015 SNAPSHOT

25 CORE FACULTY 10 ADJUNCT FACULTY 12 ENDOWED POSITIONS \$10.65M RESEARCH AWARDS 64 B.S. & 13 PH.D. GRANTED **24 PATENTS FILED**



Facultu Research Profile

Metabolic engineering Synthetic biology Systems biology Biomolecular engineering

Baneyx | Beck | Carothers DeForest | Lidstrom | Pfaendtner

Molecular electronics

Jenekhe | Jiang | Yu

Biocompatible materials Antifouling materials **Bio-inspired materials** Surfaces and interfaces Transport properites Nanomaterials Hybrid materials

Baneyx | Berg | Castner | DeForest Hillhouse | Holmberg | Jiang | Nance Pozzo | Pfaendtner | Ratner Schwartz | Overney | Yu

Cole DeForest

Assistant Professor



Dr. Cole A. DeForest joined us in January 2014. He holds an adjunct appointment in Bioengineering and is a member of the



Institute for Stem Cell & Regenerative Medicine and the Molecular Engineering & Sciences Institute.

Cole integrates concepts from material science, synthetic chemistry and stem cell biology to conceptualize, create, and exploit nextgeneration materials for human health. His group develops new classes of light-programmable materials whose biochemical and biophysical properties are tunable over a variety of time and length scales. These dynamic materials are used to probe and better understand cell function, engineer complex heterogeneous tissue and target and deliver therapeutic drugs to specific locations in the body. The approach holds great potential for improving and extending human health through tissue regeneration and the treatment of diseases.

Dr. DeForest has published in leading journals including *Nature Materials*, *Nature Chemistry* and *Angewandte Chemie*. He is the recipient of the Tietze Young Scientist Award (2015), the BMES Student Fellow Award (2013), the ACS Excellence in Graduate Polymer Research Award (2010) and the MRS Graduate Student Research Gold Award (2009). He has been supported through followships from the NIH and the LIS

through fellowships from the NIH and the US Department of Education.

Dr. DeForest earned his Ph.D. from the University of Colorado in Chemical & Biological Engineering and his bachelor's degree from Princeton University in Chemical Engineering. He was a postdoctoral fellow at the California Institute of Technology.



Venkat Subramanian

Washington Research Foundation Innovation Associate Professor

In partnership with the UW Clean Energy Institute (CEI), ChemE successfully recruited Dr. Venkat Subramanian - a renowned expert in batteries and energy storage management. Venkat started in Fall 2014. He holds an adjunct appointment in Electrical Engineering, a dual appointment at the Pacific Northwest



National Laboratory (PNNL), and is a member of the CEI.



Venkat's team models, analyzes and designs cost-effective, energy-efficient and environmentally benign electrochemical systems, with a focus on batteries, solar cells, fuel cells and sensors. His Modeling, Analysis and

Process-control Laboratory for Electrochemical Systems (MAPLE) lab has developed the fastest algorithm reported in the literature for simulating the performance of lithium-ion batteries.

Dr. Subramanian previously held academic appointments at Washington University in St. Louis and Tennessee Tech. He earned his Ph.D. in Chemical Engineering from the University of South Carolina.



VINCENT HOLMBERG

Assistant Professor

Dr. Vincent Holmberg joined the department in January 2015. He is a member of the Molecular Engineering & Sciences Institute and the Clean Energy Institute.

Vincent is the recipient of the 2012 Hertz Thesis Prize (1 of 47 awarded in the U.S.



over the last 30 years), the 2013 ISASF Ph.D. Thesis Award, the Hertz Fellowship (1 of 15 awarded in the U.S. in 2007), the NSF Graduate Research Fellowship, the MRS Graduate Student Gold Award, and the Barry M. Goldwater Scholarship. During his Ph.D., Vincent studied semiconductor nanowires and helped develop the first Si and Ge nanowire fabrics – macroscopic, free-standing, flexible ceramics made entirely of single-crystalline nanowires. He has published in leading journals including *Science*, *Nano Letters*, and *ACS Nano*.



Dr. Holmberg's laboratory aims at discovering and developing new materials systems, with a focus on large-scale production of high-

quality, inorganic nanostructures synthesized by scalable solutionand supercritical fluid-based processes. His group engineers the properties of nanomaterials, studies their transformations using *in situ* electron microscopy, assembles them into macroscopic structures, and integrates them into devices for energy conversion and storage.

Before joining UW, Dr. Holmberg was a Marie Curie Postdoctoral Fellow at ETH Zürich. He received his Ph.D. in Chemical Engineering from the University of Texas at Austin, and his B.Ch.E. in Chemical Engineering and B.S. in Chemistry from the University of Minnesota.

Elizabeth Nance

Clare Boothe Luce Assistant Professor





Dr. Elizabeth Nance started this Fall as the first Clare Boothe Luce Assistant Professor of Chemical Engineering. She is a recipient of the highly

competitive Burroughs Wellcome Career Award and was recently named one of the 2015 Forbes 30 under 30 in Science and Medicine as one of the "most disruptive, game-changing and innovating young personalities in science."

Elizabeth designs and engineers nanoparticles, both as biophysical probes and imaging biomarkers, to understand disease physiology and pathology in the central nervous system (CNS). She uses this knowledge to develop therapeutic nanoparticle platforms in clinically relevant models of pediatric and adult CNS diseases. Elizabeth created the first nanoparticles that could both penetrate and move deep into the brain to improve imaging and treatment of ailments such as cancer, autism, stroke and cerebral palsy. Her background is highly interdisciplinary and lies at the interface of engineering, neurosciences and translational medicine. She collaborates with faculty in neurosurgery, pediatric neurology, pathology and critical care.

Dr. Nance holds two nanomedicine patents and has 12 publications in leading journals including *Science Translational Medicine*, *Journal of Controlled Release*, and *ACS Nano*.

Elizabeth earned her B.S. in Chemical Engineering from North Carolina State University and her Ph.D. in Chemical and Biomolecular Engineering from Johns Hopkins University. For the past two years, she was a Hartwell Foundation Postdoctoral Fellow (10 granted in the U.S.) in the Department of Anesthesiology and Critical Care Medicine at Johns Hopkins.





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François Baneyx, Department Chair and Charles W.H. Matthaei Professor Shoko Saji: Writing, Editing & Design



UNIVERSITY of WASHINGTON Chemical Engineering

Knowledge and solutions for a changing world

