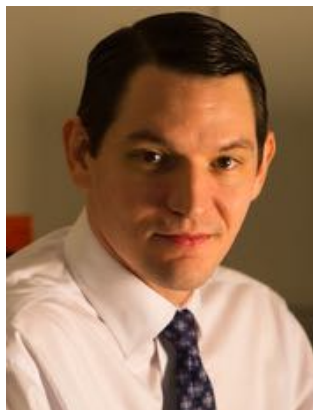


CHEMICAL ENGINEERING

SEMINAR SERIES



STEVE LITTLE

Monday, November 06, 2017

Chairman, Department of Chemical & Petroleum Engineering
William Kepler Whiteford Endowed Professor in the
Departments of Chemical and Petroleum Engineering,
Bioengineering, Immunology, and Ophthalmology
University of Pittsburgh

Controlling Controlled Release to Make Medicine That Imitates Life

ABSTRACT: Biomimetics (loosely defined) is the emulation of biological elements or processes to solve human problems. Our research group intends to reproduce the basic spatio-temporal information transfer that naturally occurs between the cells in our body to regulate biological form and function. As it stands, such is out of the reach of modern medicine. Accordingly, this seminar will introduce the idea that it is now possible to engineer synthetic constructs that can mimic the prose and context of cell-driven “communication” with the goal of inducing and/or regulating key biological processes. As just one example, simple temporal control over the release of specific growth factors can induce robust formation of specific tissues that naturally regenerate via stage-wise processes. This is possible using recent advances in the precise design of controlled release formulations. In the same way, this concept can also be used to reproduce spatial information that cells (and even tumors) employ to manipulate immunological responses. Collectively, these new tools can effectively reproduce biological context and have already shown significant promise as next-generation medical treatments in a variety of disease models where current medical treatments have no answer.

RECEPTION 3:30 • LECTURE 4:00 – 5:00
PHYSICS ASTRONOMY BLDG. PAA A110



CHEMICAL ENGINEERING
UNIVERSITY of WASHINGTON

Knowledge and solutions for a changing world

BIOGRAPHY: Dr. Steven Little is a William Kepler Whiteford Endowed Professor of Chemical and Petroleum Engineering, Bioengineering, Pharmaceutical Sciences, Immunology, Ophthalmology and The McGowan Institute for Regenerative Medicine at the University of Pittsburgh. He received his PhD in Chemical Engineering from MIT in 2005, with his thesis winning the American Association for Advancement of Science's Excellence in Research Award. Dr. Little's research has resulted in 80 peer reviewed publications; 3 book chapters; 4 US Patents, 3 US Patents Pending and the founding of two spin-out companies located in Pittsburgh, PA. Dr. Little has delivered 60 invited talks including 6 plenary presentations and 5 keynote presentations. Dr. Little has been recognized by national and international awards including the Curtis W. McGraw Research Award from the ASEE, being elected as a fellow of BMES and AIMBE, a Carnegie Science Award for Research, the Society for Biomaterials' Young Investigator Award, the University of Pittsburgh's Chancellor's Distinguished Research Award, being named a Camille Dreyfus Teacher Scholar, being named an Arnold and Mabel Beckman Young Investigator, and being elected to the Board of Directors of the Society for Biomaterials. In addition, Dr. Little's exceptional teaching and leadership in education have also been recognized by both the University of Pittsburgh's Chancellor's Distinguished Teaching Award and a 2nd Carnegie Science Award for Post-Secondary Education. Dr. Little was also recently named one of Pittsburgh Magazine's 40 under 40, a "Fast Tracker" by the Pittsburgh Business Times, and also one of only five individuals in Pittsburgh who are "reshaping our world" by Pop City Media.

Dr. Little currently serves as the 12th Chairman of the Department of Chemical & Petroleum Engineering.