

Chemistry In Emerging Technologies Lectures

Nazareth College - Peckham Hall, Room 10, 4245 East Ave., Pittsford, NY

Monday, March 27, 2017

Mending Broken Bones: Opportunities and Challenges with 3D Printing

Prof. Hani Awad

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(www.urmc.rochester.edu/labs/awad-lab)

7 p.m.: Lecture

Tissue engineering or regenerative medicine approaches based on engineering cells and scaffolds into “spare-parts” promise to shape the future of reconstructive surgery and organ transplantation. To that end, recent work in our laboratory has developed innovative strategies for adapting low-temperature 3D printing technology to fabricate osteoconductive calcium phosphate (CaP) scaffolds for applications in preclinical small and large animal models of bone regeneration. We have adapted this technology to create CaP scaffolds for concomitant, local delivery of multiple antibiotics to significantly improve the outcomes of established implant-associated bone infection (osteomyelitis) in a mouse model compared to the current clinical practice of using antibiotic-laden PMMA spacers. This technology has translational potential in medical image-guided reconstruction of massive bone loss in scenarios involving extremity bone and craniomaxillofacial trauma or infections.

Hani A. Awad received his BS in Mechanical Engineering from the Univ. of Jordan in 1993 and his Ph.D. at the Univ. of Cincinnati under the mentorship of Dr. David Butler, a leading expert in tendon and ligament repair, followed by a post-doctoral fellowship with Dr. Farshid Guilak at Duke Univ. In the Fall of 2004, he joined the Univ. of Rochester where currently, in addition to his faculty position in the Depart. of Biomedical Engineering, he is Associate Director, Center for Musculoskeletal Research, URMC. His research focuses primarily on Musculoskeletal Tissue Engineering with an emphasis on challenging clinical problems and translational solutions. Recognition of his pioneering work has included the Kappa Delta - Ann Doner Vaughan Award and an Early Career Translational Research Award in Biomedical Engineering (Wallace H. Coulter Foundation).

8:15 – 9:30 p.m.: Reception – Peckham Hall Lobby

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