NANOHOUR

Tuesday, December 4, 2012 at 3:00 pm
Beckman Institute - Room 3269

A Tooth Problem: Biomodification of Dentin Matrices as Novel Strategy for Dental Therapies

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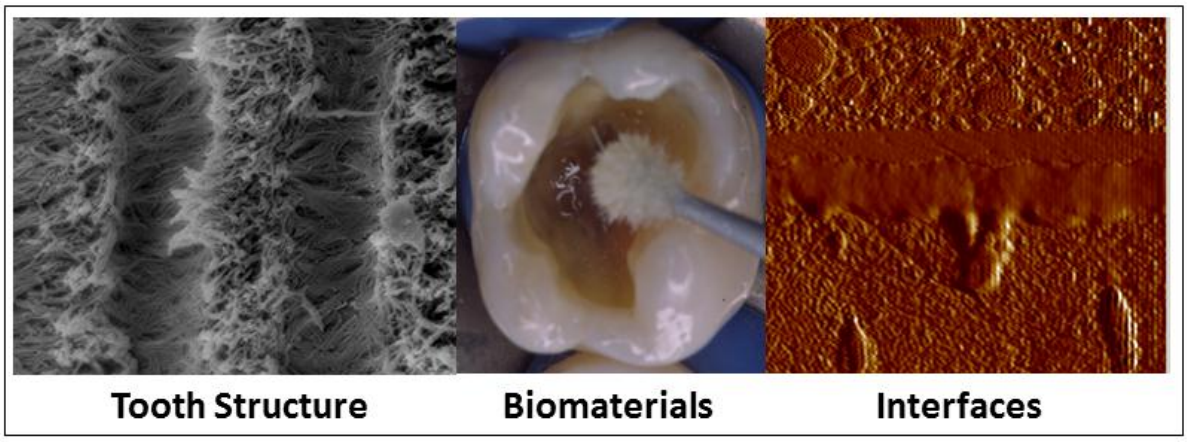
It is estimated that in the United States, 350 million dental restorations (fillings) are placed every year in dental offices. Sixty percent of those restorations replace existing failed restorative treatments. The primary reason for failure of dental restorations is secondary caries (decay), indicative of increased permeability and debonding between tooth and restorative biomaterial. Current dental adhesive restorative systems rely on the micromechanical retentions of restorations by infiltrations of hydrophilic and hydrophobic resins into a collagen-rich surface on dentin. Our laboratory at UIC has focused on understanding the tooth biochemistry/biomechanics and explored biomimetic approaches for innovative restorative/regenerative therapies. Specifically the interactions of olygomeric proanthocyanidins agents (OPC) with dentin matrices to improve mechanical properties and reduced biodegradation rates. This presentation will provide (1) overview of challenges in the harsh oral environment (2) limitations of current dental therapies and (3) mechanisms of interactions of OPC with type I collagen, proteoglycans and matrix metalloproteinases (MMPs).



Coffee and cookies will be served
http://nanohour.beckman.illinois.edu