



Ireland's National Dermatology
Research & Education Centre



UCD School of Medicine
Scoil an Leighis UCD
Charles Institute
of Dermatology



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UCD Charles Institute Seminar Series Wednesday, February 5, 2025 @12PM

In-Person UCD Charles Seminar Room (& Online)

ZOOM ID & PASSWORD - 645 9856 7448 & 853509



Engineered *In Vitro* & Computational Models for Studying Mechanobiology of Soft Tissue (e.g., skin) Remodeling Professor Edward Sander Ph.D.

Roy J. Carver Dept of Biomedical Engineering, Uni. of Iowa, USA.

BIO: Ed Sander is Professor and Robert & Virginia Wheeler Faculty Fellow in the Roy J. Carver Department of Biomedical Engineering at the University of Iowa. He has secondary appointments in Chemical & Biochemical Engineering and Orthopedic & Rehabilitation Therapy.

Ed is Director of Graduate Studies and Editor-In-Chief of the Biomedical Engineering Society Journal *Cellular and Molecular Bioengineering*.

Abstract: During development, cell-cell and cell-matrix interactions orchestrate the formation of organized, functional tissues. Later in life these same tissues have limited capacity to regenerate themselves in response to injury, disease, or the aging process.

Efforts to direct tissue self-structuring and remodeling are progressing but are hampered by a lack of understanding of how interactions are coordinated locally and globally across multiple length and times scales, particularly in terms of the role of the mechanical environment.

This environment is dependent in part on the composition, organization, and stiffness of the local extracellular matrix and by how physical forces are communicated throughout the tissue to a cellular level. To understand these interactions (esp. mechanochemical interactions) amongst different skin cell types (fibroblasts, keratinocytes, and adipocytes), our lab combines computational modeling and *in vitro* engineered systems to understand the mechanobiology of tissue remodeling and to develop tissue engineering-based strategies to reduce scarring and improve tissue function.