

A talk sponsored by the  
Institute for Molecular and Nanoscale Innovation

“Profiling Chemical Microdomains in Extracellular Space”



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**ABSTRACT**

Cellular activity, such as ion transport or metabolism, modifies chemical signatures in the extracellular space. These signatures, or profiles, reflect both normal cell behavior and pathophysiology, so coupling to them can offer important insights into both function and disease. However, such coupling is not straightforward due, in part, to the weak signals involved, the properties of sensors, and the micro to nano proportions of the spaces and volumes where these events take place. This presentation will cover recent advances in this non-invasive application of electrochemical sensors and their use in biomedical research, monitoring single cell channel activity to oxygen uptake. The challenges for further miniaturization will be considered.

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Dr. Smith received his Bachelor of Science and Ph.D. from Aberdeen University in Scotland and his M.A. in Cambridge, England. He is a member of American Assoc. for the Advancement of Science, Biophysical Society, Corporation Member of the MBL, International Brain Research Organization, Institute of Biology (UK), Society for Experimental Biology (UK), Society for Neuroscience and the Society for General Physiology.

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