

2021-2022 ANALYTICAL CHEMISTRY SEMINAR SERIES



Resolving nanoscale ion transport through biological interfaces

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For the last decade, we have developed Potentiometric-Scanning Ion Conductance Microscopy as a tool for the measurement of ion transport. We will show recent progress in measuring relevant biological processes, including effects of hyperosmolar conditions, on Madin-Darby Canine Kidney strain II (MDCKII) cells, which allows differentiation of two types of tight junctions to form between the cells: bicellular tight junctions (bTJs) and tricellular tight junctions (tTJs). We discovered that hyperosmolality leads to an increased conductance at tTJs without significant alteration in conductance at bTJs. We will also describe a new hybrid 2D-3D blood-brain barrier model based on paper substrates; this model aims to address challenges in future measurements. Finally, preliminary results on pressure deformation at erythrocytes will be described as an avenue of future interest.

OCTOBER 11, NOON - 1:00PM
CHAPMAN 125 + ZOOM