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Electrode-electrolyte impedance due to polarization: influence of surface roughness BRIAN MAZZEO, EFREN CRUZ CORTES, BRETT MEL-LOR, Brigham Young University — Many new measurement paradigms make use of microelectrodes for interrogating liquids and biological tissues. Double-layer formation at the electrode-electrolyte interface contributes to the measured impedance of the electrode surface in series with the substance that is being measured. An empirical constant phase element is often used to model the impedance of the interface. Engineering the surface thus provides a path to reduce the influence of electrode polarization in liquid measurements. Here, the surface roughness is used to modify the interfacial impedance, greatly increasing the available bandwidth for dielectric spectroscopy of protein solutions.

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