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Spectro-microscopic investigations of ion reconfiguration in ionic liquids[1] JERZY SADOWSKI, WATTAKA SITAPUTRA, DARIO STACCHIOLA, JAMES WISHART, FENG WANG, Brookhaven National Laboratory — Ionic liquids are being used in range of applications, such as in batteries, catalysts, and transistors. This creates a need for better understanding of their dynamics and the nature of the interactions with solid interfaces, particularly under operating conditions. In this work, we present results of an in situ spectro-microscopic investigations of a few monolayers of 1 ethyl-2,3-dimethylimidazolium bis(trifluoromethanesulfonyl)imide (EMMIM TFSI) deposited on an a surface with electrodes patterned on it. We show that long-range and correlated ionic reconfigurations occur near the electrodes when the bias is applied to them. These processes are temperature- and thickness-dependent, which in turn is related to ionic mobility and different configurations for out-of-plane ion ordering near the electrodes.

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Jerzy Sadowski
Brookhaven National Laboratory

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