SUM FREQUENCY VIBRATIONAL SPECTROSCOPY STUDY OF THE IONIC LIQUID-TITANIUM DIOXIDE INTERFACE

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Sum frequency Generation Spectroscopy is performed at the ionic liquid-titanium dioxide interface. Two pure room temperature ionic liquids are studied: 1-butyl-3-methylimidazolium methanesulfonate ([BMIM][MS]), and 1-butyl-3-methylimidazolium Dicyanamide ([BMIM][DCA]). Vibrational modes pertaining to the cation and the anion are detected, molecular orientation calculations are performed, and a structure of the ordering of the molecular species at the interface is proposed.