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Acoustic Desorption from a Room Temperature Ionic Liquid. PETER HARRIS, EUGENE TRACY, WILLIAM COOKE, College of William and Mary — We use laser induced acoustic pulses to efficiently desorb ions from a Room Temperature Ionic Liquid (RTIL) in vacuum. Our RTIL, 1-butyl-3-methylimidazolium hexafluorophosphate, remains a stable liquid at pressures exceeding 10^{-9} torr. We use the 2^{nd} harmonic of a Nd:YAG laser, 2ns pulse time, to generate acoustic pulses via laser ablation of the backside of a metal foil. Both negative and positive ions are desorbed from the liquid RTIL surface on the front side of the foil. The m/q of ejected ions is detected via TOF measurements from an imaging micro-channel plate detector. We measure the time our acoustic pulse reaches the RTIL surface by detecting the ejected electron signal. We present data showing the variation of desorbed ion yield as a function of the amplitude and shape of the incident acoustic pulse.

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