

Abstract Submitted
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Cold Multiphoton Matrix Assisted Laser Desorption/Ionization (MALDI) PETER HARRIS, WILLIAM COOKE, EUGENE TRACY, College of William and Mary — We present evidence of a cold multiphoton MALDI process occurring at a Room Temperature Ionic Liquid (RTIL)/metal interface. Our RTIL, 1-Butyl-3-methylimidazolium hexafluorophosphate, remains a stable liquid at room temperatures, even at pressures lower than 10^{-9} torr. We focus the 2^{nd} harmonic of a pulsed (2ns pulse length) Nd:YAG laser onto a gold grid coated with RTIL to generate a cold (narrow velocity spread) ion source with temporal resolution comparable to current MALDI ion sources. Unlike conventional MALDI, we believe multiphoton MALDI does not rely on collisional ionization within the ejection plume, and thus produces large signals at laser intensities just above threshold. Removing the collisional ionization process allow us to eject material from smaller regions of a sample, enhancing the suitability of multiphoton MALDI as an ion imaging technique.

Peter Harris
College of William and Mary

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