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A New Technique for the Direct Determination of the Quasi-free Electron Energy in Dense Fluids YEVGENIY LUSHTAK, CHERICE EVANS, Queens College – CUNY and the Graduate Center – CUNY, New York, NY, GARY FINDLEY, University of Louisiana at Monroe, Monroe, LA — Previous experimental studies of the quasi-free electron energy $V_0(\rho)$ in fluids of density ρ either directly measured $V_0(\rho)$, using photoemission from an electrode immersed in the fluid, or extracted $V_0(\rho)$ from field ionization of a dopant dissolved in the fluid. We present a new method to determine $V_0(\rho)$ directly, namely field enhanced photoemission. We show that this new method yields data of comparable quality to those obtained from dopant field ionization, thereby greatly improving on prior direct photoemission studies. Moreover, unlike dopant field ionization, field enhanced photoemission is not limited by the solubility of a dopant in the fluid of interest.

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