

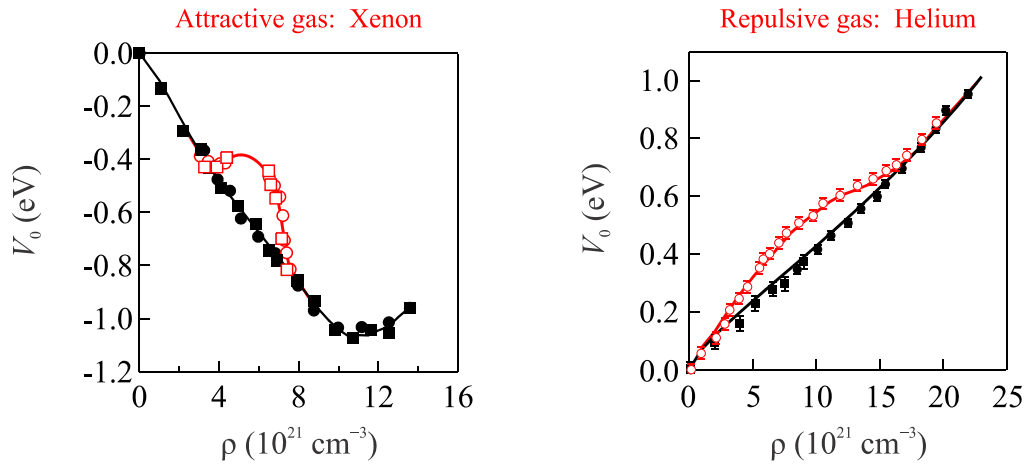
# Quasi-free Electron Energy in Dense Fluids: Evolution of Experimental and Theoretical Techniques

Cherice M. Evans<sup>a</sup> and Gary L. Findley<sup>b</sup>

<sup>a</sup>Queens College – CUNY and the Graduate Center – CUNY, New York, NY

<sup>b</sup>University of Louisiana at Monroe, Monroe, LA

During the past fifteen years at SRC, a concerted effort has been made to understand the quasi-free electron energy in dense and near critical point attractive and repulsive fluids. (“Attractive” or “repulsive” means that the zero-kinetic-energy electron scattering length in the fluid is negative or positive, respectively.) This effort – which was begun at SRC by Dr. Ruben Reininger and later continued by our group – has shown a strong critical point effect. Moreover, this extended investigation has yielded insight into the importance of local density fluctuations in modeling the energetics of an electron in the fluid. This seminar will present a review of previous investigations of the quasi-free electron energy in dense fluids and will discuss the future of this problem, including an extension to polar fluids as well as the initial investigation of the relationship between electron energy and electron mobility.



**Figure:** Quasi-free electron energy  $V_0$  as a function of fluid density  $\rho$  for the attractive gas xenon and the repulsive gas helium.