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**Kinetic Effects in Low Pressure Capacitively Coupled Plasmas** ALEXANDRE LIKHANSKII, CHRISTINE ROARK, PETER STOLTZ, Tech-X Corporation — We present results of particle-in-cell/Monte Carlo collision simulations of kinetic effects in low pressure capacitively coupled plasma discharge. In particular, we examine discharges of various gases (including Ar, Xe, and others) in the pressure range of 10s of mT and the frequency range of 10s of MHz. We track the formation of high energy electrons (e.g., at the ionization threshold or greater) as a marker for enhanced ionization, and look at the effects of elastic and inelastic collisions on the formation of these high energy electron bunches. We show results for 2D and 3D simulations where we include density gradient effects, and results for plasma chemistry effects on the bulk electron energy distribution function and the ion energy distribution function at a plasma surface interface. We discuss the role of the bunches on electron heating in the plasma bulk and on their presence on how electron heating is treated in fluid simulations of plasma sources.

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