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**Time-dependent electron energy distribution functions in radio frequency plasmas containing nanometer-sized dust particles.**<sup>1</sup> UWE KORTSHAGEN, University of Minnesota — Nano-dusty plasmas, plasmas containing nanometer-sized particles generated through plasma chemical reactions, have attracted significant interest for the synthesis of nanomaterials with new properties. In these plasmas, the plasma properties are strongly affected by the presence of the dust particles because a majority of plasma electrons can become attached to the particles. In this presentation, the author investigates the influence of the presence of dust particles on the electron energy distribution function. Nano-dusty plasmas are typically operated at pressures of a few 100 Pa and excited using radio-frequency (RF) power. Under these conditions, even a pristine plasma will exhibit an electron energy distribution function that is time-dependent because the energy relaxation frequency of energetic electrons capable of performing inelastic collisions exceeds the RF angular frequency. The presence of dust particles introduces new phenomena that affect the electron energy distribution function.

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