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A comparison of the local field approximation and the local mean energy approximation in a dusty plasma ALTHEA WILSON, The University of Alabama in Huntsivlle, MOHAMMAD DAVOUDABADI, ANSYS, Inc., BABAK SHOTORBAN, The University of Alabama in Huntsville — Two methods of determining rate coefficients, the local-field approximation and the local-mean-energy approximation, are compared for a dusty plasma. A low pressure cylindrical RF argon reactor is modeled computationally. Then multiple small dust grains are released and tracked in a three-dimensional framework. Gravity, neutral drag, ion drag, and grain-grain interaction forces are considered to act on dust. The differences in the plasma properties and in the resulting dust crystal generated through two methods are examined.

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