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Dust particle pair correlation functions and the non-linear effect of interaction potentials.[1] JIE KONG, KE QIAO, LORIN MATTHEWS, TRUELL HYDE, CASPER - Baylor University — Dust temperature is a measure of the energy of the stochastic motion of a dust particle, which is a result of the combination of Brownian motion and fluctuations in between the dust charge and the confining electric field. This presentation will provide results of our recent investigation into the relationship between the dust particle temperature as derived using two different analysis techniques: the mean square displacement and the distribution of displacements obtained from the random motion of the dust particle. Experimental results indicate that the harmonic confinement potential acting on the dust particle can be obtained by combining the two methods, allowing the non-linear effect of the confining force to be investigated.

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