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Time-dependent motion of particles in the expanding flow.

Vladimir Zakharov (1,2), Stavro Ivanovski (3), Vincenzo Della Corte (1,2), Alessandra Rotundi (1,2), and Marco Fulle (3)

(1) INAF - Istituto di Astrofisica e Planetologia Spaziali, Rome, Italy, (2) Università degli Studi di Napoli Parthenope, Naples, Italy, (3) INAF - Osservatorio Astronomico, Trieste, Italy

In the context of an increasing number of complex multiparametric dusty gas coma models it is convenient to construct a set of elementary models with a minimum number of parameters selected to represent the key processes acting on the dusty gas coma. Such kind of models enables studies of generic processes occurring in variety of particular cases in order to reveal their similarity and characteristic features.

In the present work we present results of the numerical study of a dust motion in a time dependent spherically expanding flow. The gas flow is represented by the expansion of ideal gas from a spherical sonic source with changing gas production rate (”pulsating source”). The dust grains are represented by isothermal spherical grains. This problem share many similarities with dust motion in the inner dusty-gas coma in general and in outbursts in particular. Although we study motion of individual dust grains special attention is given to temporal and spatial variation of the size distribution function of dust grains.

The models outputs can be used as a reference evaluation of these processes with rough estimates of the resulting dusty gas properties.