Simulation of charging and dynamics of dust particles in the tokamak plasma environment with DUSTT code. Y. TANAKA, Kanazawa U., A.YU. PIGAROV, S.I. KRASHENINNIKOV, UCSD, T.K. SOBOLEVA, UNAM — Recent theoretical predictions and experimental observations indicated that dust particles in tokamak plasma can be accelerated up to large velocities; $\sim$100 m/s. The dominant role in dust dynamics (in particular, in dust acceleration) plays ion/dust drag force. The values of drag force strongly depend on plasma parameters as well as on dust size, shape, temperature, and electric charge. Theoretical models for charging and drag forces available for practical applications are limited by spherical and non-emitting particles only that introduces uncertainty in dust dynamics. In order to assess the impact of ion/dust drag force uncertainties, we perform the sensitivity study by varying Epstein's drag force coefficients and Hutchinson's fitting formula. In our studies, we use the DUST Transport (DUSTT) code to simulate the trajectories of test dust particles based on realistic plasma environment calculated by plasma transport code UEDGE.

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