Process of heat and mass transfer of particles in split systems

© A.A. Gurchenkov

Bauman Moscow State Technical University, Moscow, 105005, Russia

Computer programs for modeling stationary processes of heat and mass transfer to be used in the offered systems of slot-hole and cylinder types were developed on the base of the mathematical model of interaction between atoms escaping from the surface of condensation phase. Computer experiments allowed to determine probabilities of atoms' departure from the systems, angle distributions and energy of atoms' departures, atom distributions by evaporation surfaces and numbers of atom collisions with walls of the system. The approach is convenient for obtainment of exact formulas of probabilities of particles departures from systems of slot-hole type. Exact formulas were received for the systems with various wall heights and number of particle collisions with the walls of the system in free molecular mode of gas environment flow and various laws of particles departure from surfaces.

Keywords: *mathematical modeling, geometric probability method, particles transfer.*

Gurchenkov A.A., Dr. Sci. (Phys.&Math.), Professor of the Higher Mathematics Department at Bauman Moscow State Technical University. Research interests: control and stability of fluid-containing rotating rigid bodies. e-mail: challenge2005@mail.ru