

Generalized equations of chemical kinetics in Renyi statistics

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For a consistent description of atomic reaction-diffusion processes in the system “gas-adsorbate-metal” the averaged densities of gas atoms absorbed and not absorbed on the metal surface along with the nonequilibrium pair distribution function of adsorbed atoms are chosen for the basic parameters of the reduced description.

By means of the Zubarev nonequilibrium statistical operator method in Renyi statistics [1] the generalized transport equations describing adsorption and reaction-diffusion processes between atoms adsorbed on the metal surface are obtained. At Renyi parameter $q = 1$, they coincide with the equations of reaction-diffusion processes based on Gibbs statistics [2].

1. B.B. Markiv, R.M. Tokarchuk, P.P. Kostrobij, M.V. Tokarchuk, *Physica A*, 2011, **390**, 785.

2. P.P. Kostrobii, M.V. Tokarchuk, B.M. Markovych, V.V. Ignatyuk, B.V. Gnativ, *Reaction-diffusion processes in the “metal-gas” systems*, Publishing house of Lviv Polytechnic National University, Lviv, 2009 (in Ukrainian).