Abstract Submitted
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Numerical simulations of N_2-N_2 quasi-complex formation in binary collisions ANATOLY NAPARTOVICH, Retired, ALEXANDER KURNOSOV, SRC RF TRINITI, CENTER FOR THEORETICAL PHYSICS AND NUMERICAL SIMULATIONS TEAM[1] — It's known that atomic and molecular collisions in a gas at low temperatures may result in formation of the unstable quasi - complexes (QC). The specific feature of these complexes is rather long life time. The QCs are of interest for researchers since they can play an active role in various physical and chemical processes. Stabilization of a QC results in formation of molecular dimer. Numerical simulation of dynamics of the QCs requires detailed data about interaction potential. In particular, in [1] studies were done on sensitivity of the characteristics of Ar-CO_2 QC to a form of potential energy surface. No information exists about dynamics of bimolecular QCs. The purpose of our study is numerical simulations of a QC formation in bimolecular collisions. Of particular interest is formation of N_2-N_2 QC since the molecular nitrogen is the widespread species. We used the semi-classical coupled-state method described in [2] with the same intermolecular potential function. The rate constants for the N_2-N_2 QC formation will be presented.

[1] S. V. Ivanov, Molecular Physics, 2004, v.102, p.1871
[2] M. Cacciatore, A. Kurnosov, A. Napartovich, Journal of Chemical Physics, 2005, v.123, p.174315

[1]This is result of free collaboration

Anatoly Napartovich
Retired

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