Abstract Submitted
for the GEC13 Meeting of
The American Physical Society

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 \cite{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 \cite{2} with the
same intermolecular potential function. The rate constants for the $N_2-N_2$ QC for-
mation will be presented.

\begin{thebibliography}{9}
\bibitem{1} S. V. Ivanov, Molecular Physics, 2004, v.102, p.1871
\bibitem{2} M. Cacciatore, A. Kurnosov, A. Napartovich, Journal of Chemical Physics, 2005,
v.123, p.174315
\end{thebibliography}

\(^1\)This is result of free collaboration

Anatoly Napartovich
Retired

Date submitted: 08 Jun 2013

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