

**APPLICATION OF QUANTUM-MECHANICAL APPROXIMATIONS IN THE
CALCULATION OF RATE COEFFICIENTS OF ELECTRONIC ENERGY
TRANSFER PROCESSES IN MOLECULAR COLLISIONS**

Andrei S. Kirillov

Polar Geophysical Institute
Apatity Murmansk region, 184200 Russia
e-mail: kirillov@pgi.kolasc.net.ru

This is a review of quantum-mechanical approximations applied in the calculations of rate coefficients of electronic energy transfer processes in atom-molecular collisions. Some of the methods have been applied in our study of quenching coefficients for triplet and singlet states of molecular nitrogen. The calculated coefficients of the energy transfers between electronically excited states in intramolecular and intermolecular processes in a collision of two nitrogen molecules are compared with experimental data.