ROTATIONAL PREDISSOCIATION OF X...BC VAN DER WAALS
MOLECULES USING A ROTATION-VIBRATION DECOUPLING
SCHEME.

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We address ourselves to the study of rotational predissociation of a van der Waals molecule formed by a rare gas atom X and a diatomic molecule BC, that is considered as a rigid rotor. We are interested in intermediate cases ($BC = O_2, N_2, CO$, etc.) where the rotational spacings are not large enough to let the use of a rotational distorted-wave diabatic description, neither small enough to treat the problem within the well known "infinite order sudden" approximation. Hence, we propose the diagonalization of the hamiltonian, at each atom-diatom distance R, by means of a R-dependent rotational basis set. The corresponding eigenvalues constitute effective potentials for the stretching motion, and a simple "golden rule" procedure is able to reproduce rates for vibrational predissociation associated with the respective metastable levels. Final rotational distributions of the diatomic fragment may be not accurate if final intercontinua couplings are not taken into account.