EINSTEIN A-COEFFICIENTS AND STATISTICAL WEIGHTS FOR MOLECULAR ABSORPTION TRANSITIONS IN THE $HITRAN$ DATABASE

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The weighted square of the transition moment presented in previous editions of $HITRAN$ has been replaced by the Einstein A-coefficient in $HITRAN$ 2004. The calculation has been performed using the $HITRAN$ line intensities S_{HIT}, the statistical weights g_2 of the upper levels and other related quantities

$$A_{21} = 8\pi c\nu_0^2 Q_{tot}(T_0) S_{HIT}/(e^{-c_2 E_1/T_0}(1 - e^{-c_2\nu_0/T_0}) I_a g_2).$$

The motivations and the corresponding theory, including the determination of the statistical weights for molecules of various symmetries, will be discussed.