STARK EFFECT USING TENSORIAL FORMALISM IN THE D_{2h} GROUP: APPLICATION TO THE C_2H_4 MOLECULE

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A tensorial formalism adapted to the case of X_2Y_4 asymmetric molecules[a] with D_{2h} symmetry has been developed in the same way as in the previous works on XY_4[b] (T_d) and XY_6[c] (O_h) spherical tops, XY_5Z (C_{4v}) symmetric tops[d,e] or XY_2Z_2 (C_{2v}) asymmetric tops[f]. We have then constructed a Stark Hamiltonian using the same principle. This model allows the calculation of Stark shifts and splittings in the spectra of D_{2h} molecules. Preliminary predictions will be shown for some rovibrational bands of the C_2H_4 molecule.

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