Supporting Information

Anharmonic Vibrational Properties from Intrinsic n-Mode State Densities

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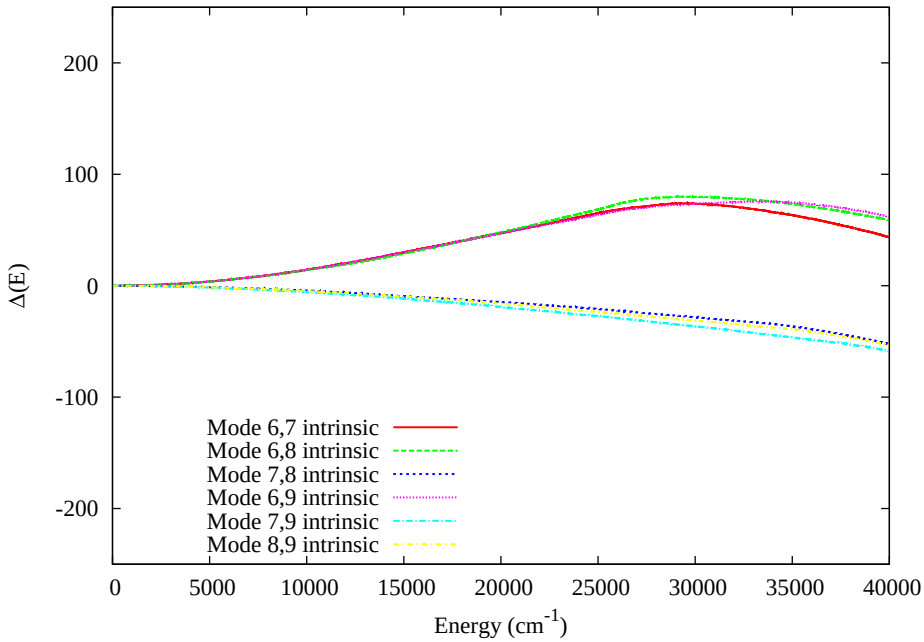

Figure 1: Intrinsic densities of states corresponding to coupling amongst the stretching modes of CH_4

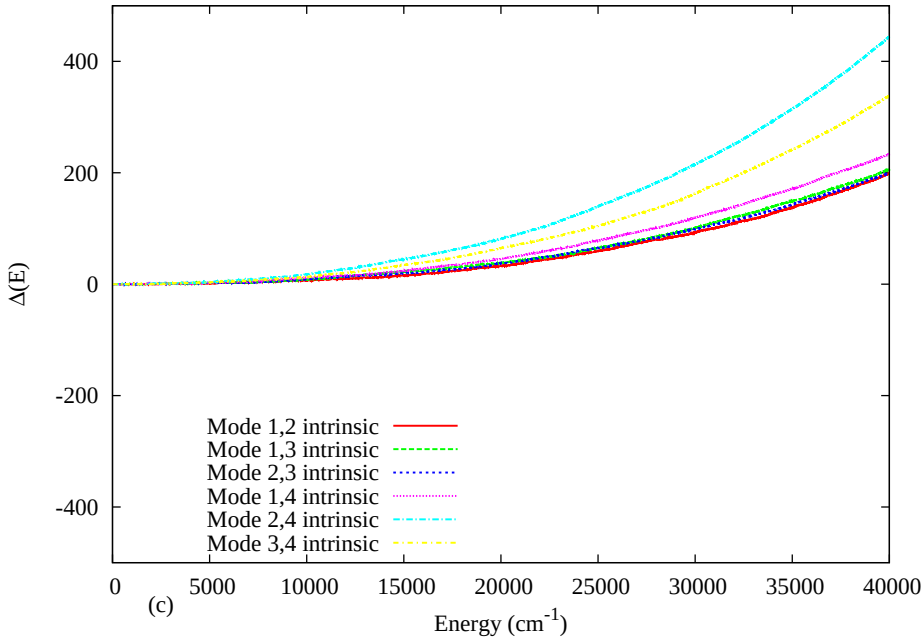

Figure 2: Intrinsic densities of states corresponding to coupling amongst the bending modes of CH_4.

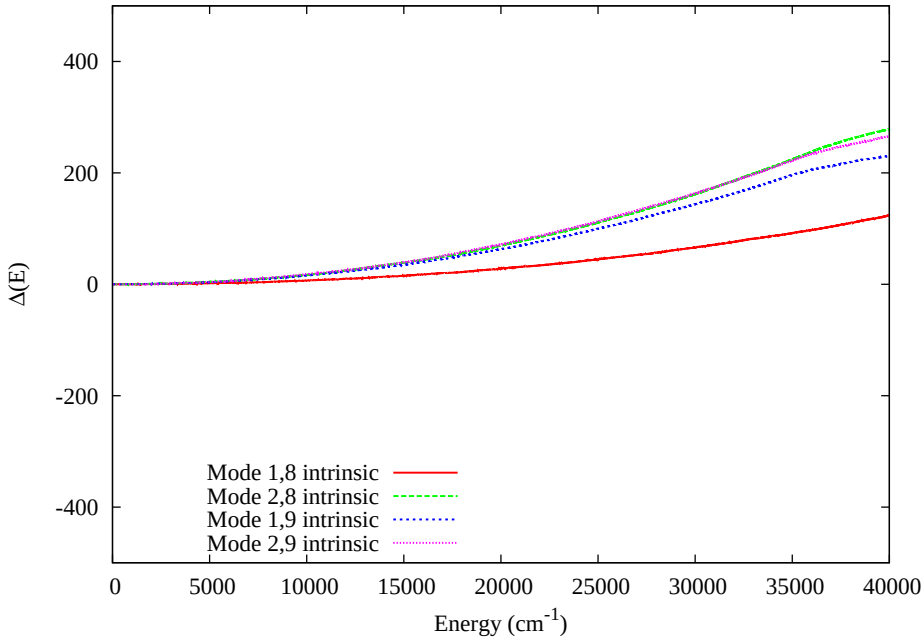

Figure 3: Intrinsic densities of states corresponding to coupling between stretching and bending modes of CH_4.

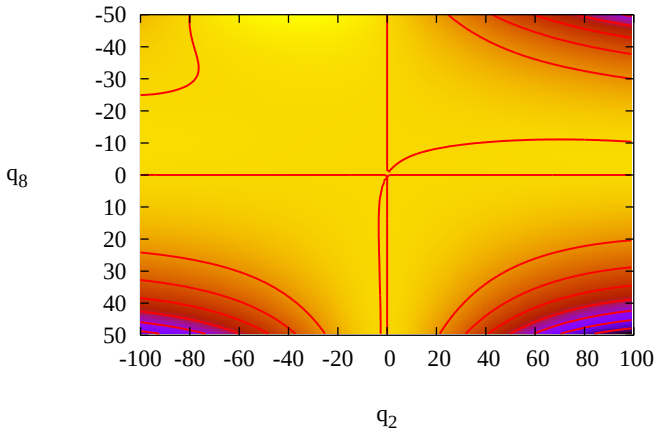

Figure 4: Contour plot of $V^{(2)}(q_2, q_8)$. Contour lines are in increments of 10 000 cm^{-1} starting from -80 000 cm^{-1}. By construction $V^{(2)}(q_2, q_8)$ is 0 along the x- and y-axes.