Correcting Basis Set Superposition Error in Protein Weak Interaction Networks

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Within the fragment A249-N254 of *Streptococcus pneumoniae* hyaluronate lyase there is an unusual network of hydrogen bond interactions, including a methyl-donated hydrogen bond, and possibly related to enzyme function. Our goal is to calculate the energy of each hydrogen bond, and any energy sharing contributions among them. Correcting for basis set superposition error is difficult when the network is not physically separable. We derive and assess a model chemistry capable in principle of solving for the desired energies.