USING TRYPTOPHAN AS A PROBE FOR STUDYING PROTEIN HYDRATION DYNAMICS

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Although tryptophan has been used as a probe to study solvation dynamics for decades, a few questions still remain unclear, such as missing of the initial fast component. We proposed a solvation model for construction of the response function of tryptophan probe and carefully investigated the possible initial loss of the ultrafast component with established time-zero emission spectrum and femtosecond-resolved emission spectra (FRES)[a]. With mutation of GB1 protein, we demonstrated that tryptophan is a powerful probe for protein solvation dynamics and show significant slowdown of the dynamics of hydration shell at protein-water interface.

[a] Y. Qin, C.-W. Chang, L. Wang and D. Zhong, *J. Phys. Chem. B.* **116**, 13320, (2012).