The heterogeneity of the tryptophan (Trp) fluorescence emission of several proteins containing a single tryptophan residue, either embedded in the interior of the protein matrix or freely accessible to the solvent, was studied by the time-correlated single photon counting technique. The data of the polarized components of the fluorescence emission were analyzed by the Maximum Entropy Method in one dimension (excited-state lifetimes $t$) and two dimensions (excited-state lifetimes $t$ and rotational correlations times $q$). The 2D analysis of the Trp fluorescence emission clearly shows a correlation between the shortest excited state lifetime and the fastest motion. The existence of slowly exchanging conformational substates with different packing constraints affecting the indole subnanosecond mobility can be suggested in specific cases.
There is no charge for this document.