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First-order Conformation Transition of Single Polyelectrolyte Molecules in Aqueous Solutions[1] SHENGQIN WANG, JIANG ZHAO, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100080, China — The molecular conformation of a weak polyelectrolyte, poly 2- vinylpyrindine (P2VP), as a function of charge density and electrostatic screening was studied by single molecule fluorescence techniques. By fluorescence correlation spectroscopy (FCS), the diffusivity of the P2VP in solution was studied at single molecule level. It was found that the diffusion coefficient (therefore the hydrodynamic radius) of P2VP experienced a first-order transition at varying pH values (charge density), while it underwent a continuous transition at different electrostatic screening.

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