



**Fig S1. Time scale of each PC mode of ubiquitin estimated using the three tested methods.** There are  $3 \times 72 - 6 = 210$  PC modes ( $C_{\alpha}$ -based) calculated from the 600-nanosecond simulation of ubiquitin. The blue, red and green lines show intensity-weighted period ( $\tau_w$ ), characteristic time ( $\tau_c$ ) and relaxation time ( $\tau_r$ ) respectively for all the PC modes.