

Abstract Submitted  
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**Dissipative Dynamics of Enzymes** AMILA ARIYARATNE, University of California Los Angeles, CHENHAO WU, University of California San Diego, CHIAO-YU TSENG, GIOVANNI ZOCCHI, University of California Los Angeles, ZOCCHI LAB FOR MOLECULAR BIOPHYSICS TEAM — We explore enzyme conformational dynamics at sub - Å resolution, specifically temperature effects. The ensemble averaged mechanical response of the folded enzyme is viscoelastic in the whole temperature range between the warm and cold denaturation transitions. The dissipation parameter  $\gamma$  of the viscoelastic description decreases by a factor 2 as the temperature is raised from 10 C to 45 C; the elastic parameter  $K$  shows a similar decrease. Thus when probed dynamically, the enzyme softens for increasing temperature. Equilibrium mechanical experiments with the DNA spring (and a different enzyme) also show, qualitatively, a small softening for increasing temperature.

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