

1116-57-2314 **Kenneth C Millett*** (millett@math.ucsb.edu), Department of Mathematics, UCSB, Santa Barbara, CA 93106. *Local spatial entanglement of protein structures*. Preliminary report.

Although knotting and slipknotting have been identified within several classes of proteins, to date none of the topoisomerases have been found to contain knotted structure. They do, however, visually exhibit important structural features that may correlate with functional features. In this work, we employ a new method to identify and exhibit regions of local chiral entanglement thereby providing a new means to compare structure within these families and with those proteins that exhibit local knotting features. Our objective is to shine new light on facets of the mechanism by which topoisomerases act in relationship with their altering DNA topology. We will review the local linking structure of knotted and slipknotted proteins and describe the extension of this to unknotted proteins. (Received September 22, 2015)