

1049-57-52

Eric J Rawdon* (ejrawdon@stthomas.edu), Department of Mathematics, University of St. Thomas, 2115 Summit Ave, OSS201, Saint Paul, MN 55105. *Size and Shape of Knotted Polymers.*

We use numerical simulations to investigate how the chain length and topology of freely fluctuating knotted polymer rings affect their size and shape. In particular, we analyze ellipsoids describing the inertial properties of the simulated polymers and minimal ellipsoids and rectangular boxes enveloping the simulated polymers. We measure the size and shape of these geometric containers using the radius of gyration, asphericity, and prolateness and use these quantities to characterize the mean size and shape of the polymers. This work was done in collaborations with Akos Dobay, John Kern, Kenneth Millett, Michael Piatek, Patrick Plunkett, and Andrzej Stasiak. (Received February 16, 2009)