1104-92-160 **Eleni Panagiotou*** (panagiotou@math.ucsb.edu), Department of Mathematics, University of California Santa Barbara, Santa Barbara, CA 93106-3080, **Martin Kroeger** (mk@mat.ethz.ch), Department of Materials, ETH Zurich, Zurich, Switzerland, and **Kenneth Millett** (millett@math.ucsb.edu), Department of Mathematics, University of California Santa Barbara, Santa Barbara, CA 93106-3080. *Writhe and mutual entanglement combine to give the entanglement length.*

We propose a new method to estimate N_e, the entanglement length, that incorporates both local and global topological characteristics of chains in a melt under equilibrium conditions. This estimate uses the writhe of the chains, the writhe of the primitive paths and the number of kinks in the chains in a melt. An advantage of this new method is that it works for both linear and ring chains, works under all periodic boundary conditions, does not require knowing the contour length of the primitive paths and it does not rely on a smooth set of data. We apply this method to linear finitely extendable non-linear elastic chains and we observe that our estimates are consistent with those from other studies. (Received August 29, 2014)