

On topological glass in melt of non-concatenated ring polymers.

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Dense solutions of ring polymers are often said to be the least understood in polymer science. Their behaviors are very different from the linear polymer counterparts due to the topological constraint. I have recently shown that the notion of topological volume is very useful in the statistical mechanical description of non-concatenated rings[1-3]. Here I briefly review the argument, and then proceed to discuss the dynamics. The argument highlights the importance of cooperative dynamics, and gives some insight into the state dubbed as a topological glass.

- [1] T. Sakaue, Phys. Rev. Lett. 106, 167802 (2011).
- [2] T. Sakaue, Phys. Rev. E 85, 021806 (2012).
- [3] T. Sakaue and C.H. Nakajima, Phys. Rev. E 93, 042502 (2016).