Chapter 8
Topology meets polymers: Conclusion and perspectives

In this monograph, we discussed and demonstrated ongoing developments in the unique collaboration of topological geometry and polymer chemistry. We described current *topological polymer chemistry* by highlighting the diverse nature of polymers with respect to both their chemistry and their line constructions. Topological analyses could provide fundamental insights on the principal materials and/or biological properties of polymers based on their segment geometries.

Numerous opportunities are anticipated in *topological polymer chemistry* as a result of these close interactions between mathematics and chemistry. We will soon be able to acquire topological control of static and dynamic polymer properties that rely on geometry conjectures. Sometimes they may be counterintuitive relative to Euclidian geometry. Because a variety of topologically defined but complex polymers have become available, along with the formidable progress in theory and simulations, most topological effects in polymer materials will be uncovered for eventual applications. Thus, we are entering into an exciting era of polymer science and materials engineering based on precision topology design, similar to the "Cambrian explosion period" in the evolution of life. *Topological polymer chemistry*, will certainly contribute to such an exciting new era.

K. Shimokawa et al., *Topology of Polymers*, SpringerBriefs in the Mathematics of Materials 4, https://doi.org/10.1007/978-4-431-56888-9_8