# Two-point correlation functions of random knots and related topics

Tetsuo  Deguchi

*Department  of  Physics,*

*Graduate  School  of  Humanities  and  Sciences,*

*Ochanomizu  University,*

*2-1-1  Ohtsuka,  Bunkyo-ku,  Tokyo  112-8610,  Japan*[*]

We evaluate two-point correlation functions of a ring polymer with fixed topology in a $\theta$ solution by simulation, and show novel critical behavior for such ring polymers. Here the solvent satisfies the $\theta$ conditions of the corresponding linear polymers. We introduce an empirical formula for the probability distribution of distance between two segments of a ring polymer with knot type $K$ consisting of $N$ statistical segments. This talk is based on the research in collaboration with Yoko Akita and Akihisa Yao.

[*] Electronic address: `deguchi@phys.ocha.ac.jp`