

GEOMETRY AND PHYSICS OF PERIODIC TANGLING

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Using periodic surfaces as a scaffold is a convenient route to making periodic entanglements, which are interesting in the context of physics, biomaterials and chemical frameworks. I will present a systematic way of enumerating and characterising new tangled periodic structures, using low-dimensional topology and combinatorics. In addition, I will show some geometric simulation strategies that are working towards understanding the form and function of these structures as materials, using the philosophy that geometry is at the heart of many physical processes.

Joint work with Stephen Hyde (University of Sydney, Australia) and Rhoshyn Coles (TU Berlin and TU Chemnitz, Germany).