

# UNTYING PATHWAYS OF VORTEX KNOTS

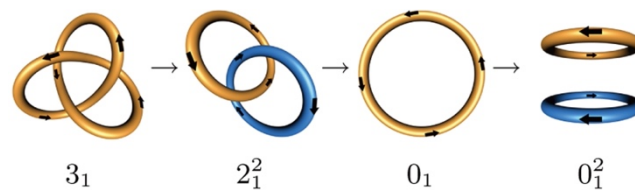
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## ABSTRACT

The untying of vortex knots by reconnections has been observed in [1]. We analyze such untying pathways by using the characterizations of band surgery on knots and links. The topology of entangled vortices is represented using oriented knots and links, and the reconnection of vortices is modeled using coherent band surgeries [2-4]. For the case where the topology of the vortices are torus knots or links of type  $T(2,p)$ , we characterize the untying pathways and determine where the reconnections occur.



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- [4] Stolz R., Yoshida M., Brasher R., Flanner M., Ishihara K., Sherratt D.J., Shimokawa K., and Vazquez M. 2017 Pathways of DNA unlinking: a story of stepwise simplification. *Sci. Rep.* **7**, 12420.