

Knotting Matters

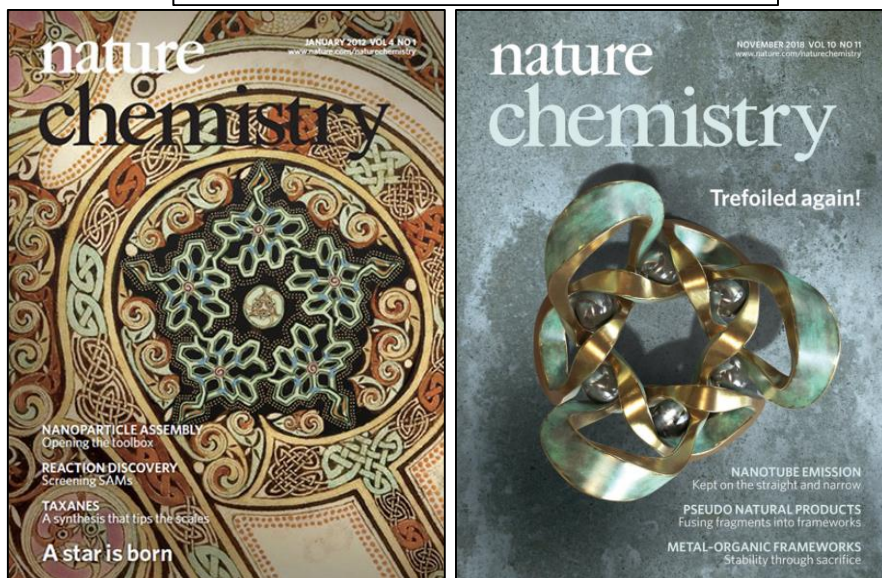
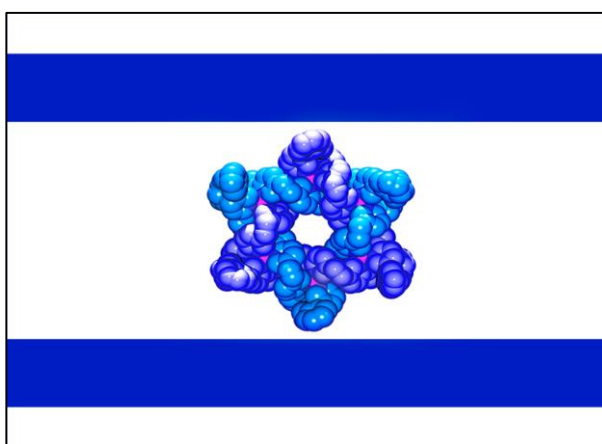
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Knots are important structural features in DNA and some proteins, and play a significant role in the physical properties of both natural and synthetic polymers.¹ Although billions of prime knots are known to mathematics, few have succumbed to chemical synthesis.² Here we will discuss the latest progress from our laboratory in this field, including the synthesis of some of the most complex molecular knots and links (catenanes) to date³⁻⁷ and the introduction of molecular weaving.



References

[1] "Molecular knots", *Angew. Chem. Int. Ed.* **56**, 11166 (2017). [2] "Template synthesis of molecular knots", *Chem. Soc. Rev.* **42**, 1700 (2013). [3] "A synthetic molecular pentafoil knot", *Nat. Chem.* **4**, 15 (2012). [4] "A Star of David catenane", *Nat. Chem.* **6**, 978 (2014). [5] "Allosteric initiation and regulation of catalysis with a molecular knot", *Science* **352**, 1555 (2016). [6] "Braiding a molecular knot with eight crossings", *Science* **355**, 159 (2017). [7] "Stereoselective synthesis of a composite knot with nine crossings", *Nat. Chem.* **10**, 1083 (2018).