

**David A Leigh, Publication List (25 May 2023)**

**2023**

317. 'Ratcheting synthesis', S Borsley, J M Gallagher, D A Leigh and B M W Roberts, submitted for publication.
316. 'Mechanical scission of a knotted polymer', M Zhang, R Nixon, F Schaufelberger, L Pirvu, G De Bo and D A Leigh, submitted for publication.
315. 'The role of kinetic asymmetry and power strokes in an information ratchet', L Binks, S Borsley, T R Gingrich, D A Leigh, E Penocchio and B M W Roberts, *Chem*, in press.
314. 'Single-molecule studies on artificial small-molecule machines', Z-H Zhang, H-N Feng, G Chi, D A Leigh and L Zhang, *CCS Chem*, published online 17 May 2023.
313. 'In search of Wasserman's catenane', A S Baluna, A Galan, D A Leigh, G D Smith, J T J Spence, D J Tetlow, I J Vitorica-Yrezabal and M Zhang, *J Am Chem Soc*, **145**, 9825-9833 (2023).  
[Most Read *J Am Chem Soc* papers; May 2023; For highlights of this paper see, 'New results vindicate suspect 63-year-old claim on synthesis of first catenane', *Chem World*, 19th May 2023; 'Did this compound ever exist?', *In the Pipeline*, 19th May 2023; 'Reimagining Wasserman's catenane: A journey from past to present (1960–2023)' (Preview), D Ahn, N Kabir, T Prakasam and A Trabolsi, *Chem*, published online 23 May 2023]
312. 'Compact rotaxane superbases', M J Power, D T J Morris, I J Vitorica-Yrezabal and D A Leigh, *J Am Chem Soc*, **145**, 8593-8599 (2023).  
[Most Read *J Am Chem Soc* papers; April 2023]
311. 'Mechanical tightening of a synthetic molecular knot', M Calvaresi, A-S Duwez, D A Leigh, D Sluysmans, Y Song, F Zerbetto, L Zhang, *Chem*, **9**, 65-75 (2023). Featured on the cover of *Chem*  
[For highlights of this paper see, 'Tied up but resilient: synthetic knots show their strength', *Nature* 12 Jan 2023, etc]

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310. 'Using catalysis to drive chemistry away from equilibrium: Relating kinetic asymmetry, power strokes and the Curtin-Hammett principle in Brownian ratchets', S Amano, M Esposito, E Kreidt, D A Leigh, E Penocchio, B M W Roberts, *J Am Chem Soc*, **144**, 20153-20164 (2022).
309. 'Tuning the force, speed and efficiency of an autonomous chemically fueled information ratchet', S Borsley, D A Leigh, B M W Roberts and I J Vitorica-Yrezabal, *J Am Chem Soc*, **144**, 17241-17248 (2022).
308. 'Social self-sorting synthesis of molecular knots', Z Ashbridge, O M Knapp, E Kreidt, D A Leigh, L Pirvu and F Schaufelberger, *J Am Chem Soc*, **144**, 17232-17240 (2022).
307. 'Transamidation driven molecular pumps', L Binks, C Tian, S D P Fielden, I J Vitorica-Yrezabal and D A Leigh, *J Am Chem Soc*, **144**, 15838-15844 (2022).  
[For a highlight of this paper see, 'Artificial active transport offers new way to prepare complex oligorotaxanes', *Chem World*, 7 Sept 2022.]
306. 'A tape-reading molecular ratchet', Y Ren, R Jamagne, D J Tetlow and D A Leigh, *Nature*, **612**, 78-82 (2022).  
[For highlights of this paper see, 'Chemical Turing machine reads molecular tape', *Chem World*, 26th Oct 2022; 'A molecular-based, finite-state machine', *Phys Org*, 27th Oct 2022; 'Crown ether reads out stereochemistry along a molecular tape', *ChemistryViews*, 21th Oct 2022, etc.]
305. 'Knotting matters: orderly molecular entanglements', Z Ashbridge, S D P Fielden, D A Leigh, L Pirvu, F Schaufelberger and L Zhang, *Chem Soc Rev*, **51**, 7779-7809 (2022). Featured on the cover of *Chem. Soc. Rev.*
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303. 'Decorating polymer beads with  $10^{14}$  inorganic-organic [2]rotaxanes as shown by spin counting', D Asthana, D Thomas, S J Lockyer, A Brookfield, G A Timco, I J Vitorica-Yrezabal, G F S Whitehead, E J L McInnes, D Collison, D A Leigh and R E P Winpenny, *Commun Chem*, **5**, 73 (2022).
302. 'Autonomous fuelled directional rotation about a covalent single bond', S Borsley, E Kreidt, D A Leigh and B M W Roberts, *Nature* **604**, 80-85 (2022).  
[For highlights of this paper see, 'Tiny labmade motors are poised to do useful work' *Science* **376**, 233 (2022); 'Molecular ratchet made from only 26 atoms rotates in one direction', J. Durrani, *Chem World*, 19 April 2022; 'A biological motor that consumes chiral fuel drives rotation in one direction around a single covalent bond', *Phys Org*, 20 April 2022; 'Autonomous fuelled directional rotation', *ChemistryViews*, 22 April 2022.]
301. 'Vernier template synthesis of molecular knots', Z Ashbridge, E Kreidt, L Pirvu, F Schaufelberger, J Halldin Stenlid, F Abild-Pedersen and D A Leigh, *Science*, **375**, 1035-1041 (2022).

[For highlights of this paper see, 'Chemists tie a knot with 12 crossings', *Chem & Eng News*, 11 March 2022; 'Химики получили циклический молекулярный узел с 12 перекрестьями' (in Russian), *NPlus1*, 3 March 2022; "错就是对 : Science报道合成分子结的Vernier模板法" (in Chinese), K. Du, *X-Mol*, 11 March 2022; "把“分子打结”做到极致" (in Chinese), *Frontiers in Polymer Science*, 3 March 2022.]

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[For a highlight of this paper see, 'Tiny labmade motors are poised to do useful work' *Science*, **376**, 233 (2022)]

299. 'Chemical fuels for molecular machinery', S Borsley, D A Leigh and B M W Roberts, *Nat Chem*, **14**, 728-738 (2022).

[For a highlight of this paper see, 'Fueling controversy', *Chem & Eng News*, **101**(5), 22-27 (2023).]

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297. 'Insights from an information thermodynamics analysis of a synthetic molecular motor', S Amano, M Esposito, E Kreidt, D A Leigh, E Penocchio and B M W Roberts, *Nat Chem*, **14**, 530-537 (2022).

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[For highlights of this paper see, 'Star of David catenane shines with both Ir and Zn', *Chem & Eng News*, **99**(2), (2021); 'Chiral star-shaped catenane', *ChemistryViews.Org*, 19 Jan 2021]

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