

**David Leigh (University of Manchester, UK) – 25 most significant publications (reverse chronological order)**

1. "A molecular endless (7<sub>4</sub>) knot", D. A. Leigh, J. J. Danon, S. D. P. Fielden, J.-F. Lemonnier, G. F. S. Whitehead and S. L. Woltering, *Nat. Chem.* **13**, 117-122 (2021).
2. "Self-assembly of a layered 2D molecularly woven fabric", D. P. August, R. A. W. Dryfe, S. J. Haigh, P. R. C. Kent, D. A. Leigh, J.-F. Lemonnier, Z. Li, C. A. Muryn, L. I. Palmer, Y. Song, G. F. S. Whitehead and R. J. Young, *Nature* **588**, 429-435 (2020).
3. "Tying different knots in a molecular strand", D. A. Leigh, F. Schaufelberger, L. Pirvu, J. Halldin Stenlid, D. P. August and J. Segard, *Nature* **584**, 562-568 (2020).
4. "Stereoselective synthesis of a composite knot with nine crossings", L. Zhang, A. J. Stephens, A. L. Nussbaumer, J.-F. Lemonnier, P. Jurček, I. J. Vitorica-Yrezabal and D. A. Leigh, *Nat. Chem.* **10**, 1083-1088 (2018). Cited 65 times as of 31.12.20 (GooSch).
5. "Rotary and linear molecular motors driven by pulses of a chemical fuel", S. Erbas-Cakmak, S. D. P. Fielden, U. Karaca, D. A. Leigh, C. T. McTernan, D. J. Tetlow and M. R. Wilson, *Science* **358**, 340-343 (2017). Cited 130 times as of 31.12.20 (GooSch).
6. "Stereodivergent synthesis with a programmable molecular machine", S. Kassem, A. T. L. Lee, D. A. Leigh, V. Marcos, L. I. Palmer and S. Pisano, *Nature* **549**, 374-378 (2017). Cited 104 times as of 31.12.20 (GooSch).
7. "Braiding a molecular knot with eight crossings", J. J. Danon, A. Krüger, D. A. Leigh, J.-F. Lemonnier, A. J. Stephens, I. J. Vitorica-Yrezabal and S. L. Woltering, *Science* **355**, 159-162 (2017). Cited 150 times as of 31.12.20 (GooSch).
8. "An autonomous chemically fuelled small-molecule motor", M. R. Wilson, J. Solá, A. Carlone, S. M. Goldup, N. Lebrasseur and D. A. Leigh, *Nature* **534**, 235-240 (2016). Cited 214 times as of 31.12.20 (GooSch).
9. "Allosteric initiation and regulation of catalysis with a molecular knot", V. Marcos, A. J. Stephens, J. Jaramillo-Garcia, A. L. Nussbaumer, S. L. Woltering, A. Valero, J.-F. Lemonnier, I. J. Vitorica-Yrezabal and D. A. Leigh, *Science* **352**, 1555-1559 (2016). Cited 138 times as of 31.12.20 (GooSch).
10. "Pick-up, transport and release of a molecular cargo using a small-molecule robotic arm", S. Kassem, A. T. L. Lee, D. A. Leigh, A. Markevicius and J. Solà, *Nat. Chem.* **8**, 138-143 (2016). Cited 113 times as of 31.12.20 (GooSch).
11. "Sequence-specific peptide synthesis by an artificial small-molecule machine", B. Lewandowski, G. De Bo, J. W. Ward, M. Pappmeyer, S. Kuschel, M. J. Aldegunde, P. M. E. Gramlich, D. Heckmann, S. M. Goldup, D. M. D'Souza, A. E. Fernandes and D. A. Leigh, *Science* **339**, 189-193 (2013). Cited 556 times as of 31.12.20 (GooSch).
12. "A synthetic molecular pentafoil knot", J.-F. Ayme, J. E. Beves, D. A. Leigh, R. T. McBurney, K. Rissanen and D. Schultz, *Nat. Chem.* **4**, 15-20 (2012). Cited 324 times as of 31.12.20 (GooSch).
13. "Operation mechanism of a molecular machine revealed using time-resolved vibrational spectroscopy", M. R. Panman, P. Bodis, D. J. Shaw, B. H. Bakker, A. C. Newton, E. R. Kay, A. M. Brouwer, W. J. Buma, D. A. Leigh and S. Woutersen, *Science* **328**, 1255-1258 (2010). Cited 92 times as of 31.12.20 (GooSch).
14. "A synthetic small molecule that can walk down a track", M. von Delius, E. M. Geertsema and D. A. Leigh, *Nat. Chem.* **2**, 96-101 (2010). Cited 307 times as of 31.12.20 (GooSch).
15. "Hybrid organic-inorganic rotaxanes and molecular shuttles", C.-F. Lee, D. A. Leigh, R. G. Pritchard, D. Schultz, S. J. Teat, G. A. Timco and R. E. P. Winpenny, *Nature* **458**, 314-318 (2009). Cited 239 times as of 31.12.20 (GooSch).
16. "A molecular information ratchet", V. Serreli, C.-F. Lee, E. R. Kay and D. A. Leigh, *Nature* **445**, 523-527 (2007). Cited 531 times as of 31.12.20 (GooSch).

17. "Beyond switches: Ratcheting a particle energetically uphill with a compartmentalized molecular machine", M. N. Chatterjee, E. R. Kay and D. A. Leigh, *J. Am. Chem. Soc.* **128**, 4058-4073 (2006). Cited 230 times as of 31.12.20 (GooSch).
18. "Catalytic "click" rotaxanes: A substoichiometric metal-template pathway to mechanically-interlocked architectures", V. Aucagne, K. D. Hänni, D. A. Leigh, P. J. Lusby and D. B. Walker, *J. Am. Chem. Soc.* **128**, 2186-2187 (2006). Cited 367 times as of 31.12.20 (GooSch).
19. "Macroscopic transport by synthetic molecular machines", J. Berná, D. A. Leigh, M. Lubomska, S. M. Mendoza, E. M. Pérez, P. Rudolf, G. Teobaldi and F. Zerbetto, *Nat. Mater.* **4**, 704-710 (2005). Cited 680 times as of 31.12.20 (GooSch).
20. "A reversible synthetic rotary molecular motor", J. V. Hernández, E. R. Kay and D. A. Leigh, *Science* **306**, 1532-1537 (2004). Cited 548 times as of 31.12.20 (GooSch).
21. "Information storage using supramolecular surface patterns", M. Cavallini, F. Biscarini, S. León, F. Zerbetto, G. Bottari and D. A. Leigh, *Science* **299**, 531 (2003). Cited 215 times as of 31.12.20 (GooSch).
22. "Unidirectional rotation in a mechanically interlocked molecular rotor", D. A. Leigh, J. K. Y. Wong, F. Dehez and F. Zerbetto, *Nature* **424**, 174-179 (2003). Cited 862 times as of 31.12.20 (GooSch).
23. "Photoinduction of fast, reversible translational motion in a hydrogen-bonded molecular shuttle", A. M. Brouwer, C. Frochet, F. G. Gatti, D. A. Leigh, L. Mottier, F. Paolucci, S. Roffia and G. W. H. Wurpel, *Science* **291**, 2124-2128 (2001). Cited 710 times as of 31.12.20 (GooSch).
24. "Influencing intramolecular motion with an alternating electric field", V. Bermudez, N. Capron, T. Gase, F. G. Gatti, F. Kajzar, D. A. Leigh, F. Zerbetto and S. Zhang, *Nature* **406**, 608-611 (2000). Cited 235 times as of 31.12.20 (GooSch).
25. "Facile synthesis and solid state structure of a benzylic amide [2]catenane", A. G. Johnston, D. A. Leigh, R. J. Pritchard and M. D. Deegan, *Angew. Chem., Int. Ed. Engl.* **34**, 1209-1212 (1995). Cited 276 times as of 31.12.20 (GooSch).