

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

1. "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).
2. "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).
3. "A catalysis-driven artificial molecular pump", S. Amano, S. D. P. Fielden and D. A. Leigh, *Nature* **594**, 529-534 (2021).
4. "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).
5. "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).
6. "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).
7. "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 188 times as of 31.12.21 (GooSch).
8. "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 131 times as of 31.12.21 (GooSch).
9. "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 181 times as of 31.12.21 (GooSch).
10. "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 277 times as of 31.12.21 (GooSch).
11. "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 162 times as of 31.12.21 (GooSch).
12. "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 143 times as of 31.12.21 (GooSch).
13. "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 623 times as of 31.12.21 (GooSch).
14. "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 360 times as of 31.12.21 (GooSch).
15. "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 335 times as of 31.12.21 (GooSch).
16. "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 249 times as of 31.12.21 (GooSch).
17. "A molecular information ratchet", V. Serreli, C.-F. Lee, E. R. Kay and D. A. Leigh, *Nature* **445**, 523-527 (2007). Cited 588 times as of 31.12.21 (GooSch).
18. "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 251 times as of 31.12.21 (GooSch).

19. "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 393 times as of 31.12.21 (GooSch).
20. "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 723 times as of 31.12.21 (GooSch).
21. "A reversible synthetic rotary molecular motor", J. V. Hernández, E. R. Kay and D. A. Leigh, *Science* **306**, 1532-1537 (2004). Cited 580 times as of 31.12.21 (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 898 times as of 31.12.21 (GooSch).
23. "Photoinduction of fast, reversible translational motion in a hydrogen-bonded molecular shuttle", A. M. Brouwer, C. Frochot, F. G. Gatti, D. A. Leigh, L. Mottier, F. Paolucci, S. Roffia and G. W. H. Wurpel, *Science* **291**, 2124-2128 (2001). Cited 728 times as of 31.12.21 (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 245 times as of 31.12.21 (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 296 times as of 31.12.21 (GooSch).