Synthesis and On-Surface Preparation of Pentadecacene

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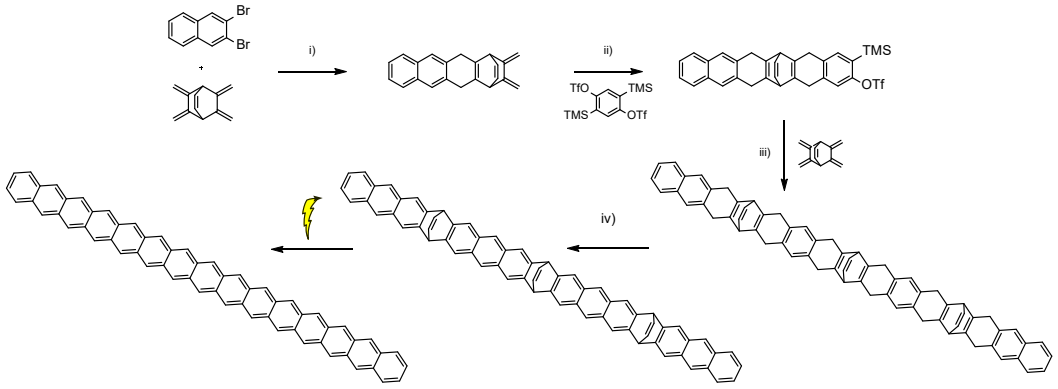
With increasing number of rings, the HOMO-LUMO gap of the acenes decreases while the (poly)radical character increases. For the comprehensive understanding of the fundamental properties of acenes their expansion towards even longer homologues is necessary. Tridecacene has been prepared recently via STM tip-induced conformational preparation and dissociation of triethenobridged precursors on a Au(111) surface.[1] We here report the synthesis of a pentadecacene precursor.



i) n-BuLi, toluene, -60 °C, 3 h; ii) MeCN, CsF, 45 °C, 19 h; iii) DCM, MeCN, KF, 18-crown-6, RT, 16 h; iv) DDQ, $CHCl_3$, RT, 2 h; v) Au(111), STM tip, 4 K

Figure 1 Generation of the pentadecacene.

References:

[1] Z. Ruan, J. Schramm, J. B. Bauer, T. Naumann, H. F. Bettinger, R. Tonner-Zech, J. M. Gottfried, *J. Am. Chem. Soc.* **2024**, *146*, 3700.

[2] R. Zuzak, M. Kumar, O. Stoica, D. Soler-Polo, J. Brabec, K. Pernal, L. Veis, R. Blieck, A. M. Echavarren, P. Jelinek et al., *Angew. Chem. Int. Ed. Engl.* **2024**, *63*, e202317091.