Prof. Yoshito Tobe

Professor emeritus at Osaka University

- 1979 Ph.D., Department of Petroleum Chemistry, Osaka University (Professor Yoshinobu Odaira)
- 1979 – 1984 Assistant Professor, School of Engineering, Osaka University
- 1984 – 1992 Lecturer, School of Engineering, Osaka University
- 1992 – 1998 Associate Professor, School of Engineering Science, Osaka University
- 1998 – 2017 Professor, Graduate School of Engineering Science, Osaka University
- 2003 – 2007 Member of University Council, Osaka University
- 2007 – 2011 Dean, Graduate School & School of Engineering Science, Osaka University
- 2014 – 2017 Director, Research Center for Solar Energy Chemistry, Director, Institute for Nanoscience Design
- 2017 Retired from Osaka University and became Emeritus Visiting Research Professor at The Institute of Scientific and Industrial Research of Osaka University

- *h*-index: 52 (April 2020)

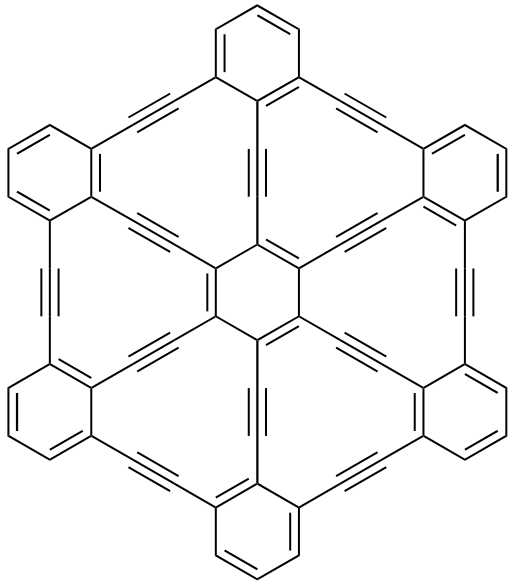
2012: Synthetic Organic Chemistry Award Japan
2013: Award for the Japanese Association for Organic π-Electron Systems
2015: The Chemical Society of Japan Award
2017: The Nozoe Lectureship Award

http://www.chem.es.osaka-u.ac.jp/supra/tb/en/members/yoshito-tobe.html (01.04.2020)

Prof. Yoshito Tobe

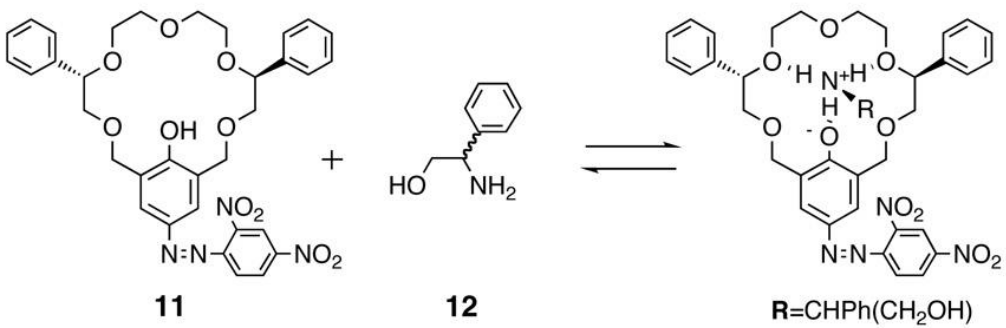
Research overview

- Creation of novel π–electron conjugated compounds



- Creation of functional molecules based on supramolecular chemistry

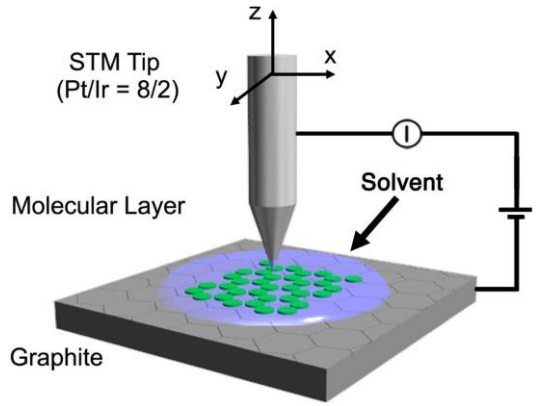
Chirality Recognition by Color Change



11 **12** **R**=CHPh(CH_2OH)

11+(*S*)-**12** **11** Only **11**+(*R*)-**12**

- Control of two dimensional molecular alignment on solid surfaces



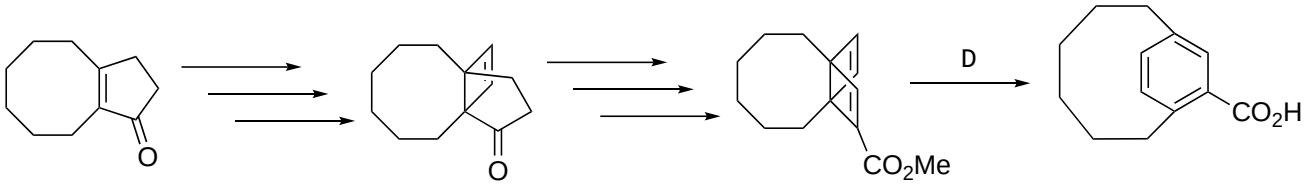
STM observation of molecular alignment at a liquid/solid interface

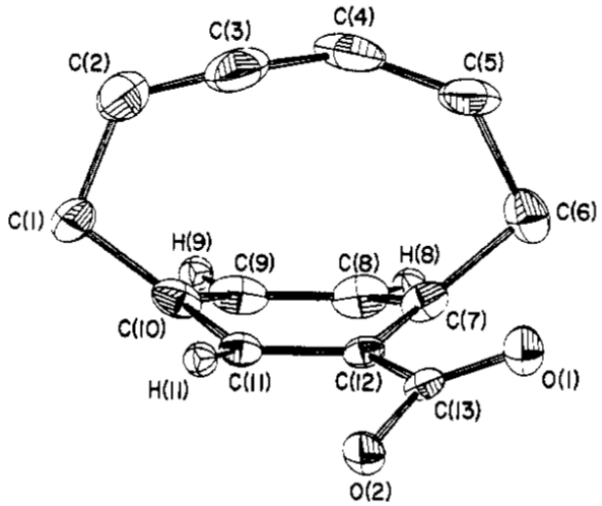
http://www.chem.es.osaka-u.ac.jp/supra/tb/en/research/ (01.04.2020)

Prof. Yoshito Tobe

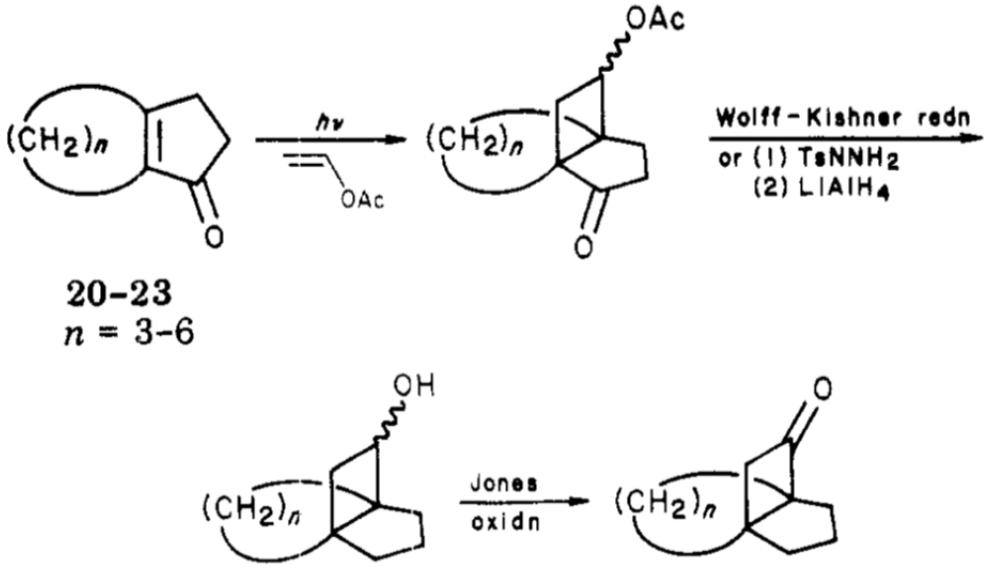
Work in the group of Yoshinobu Odaira:

- Work on propellane-based structures
- Synthesis of fused rings

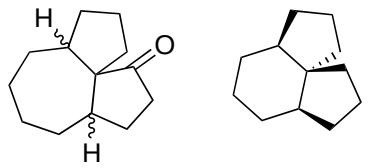


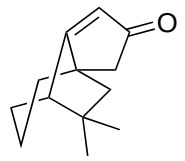


J. Am. Chem. Soc. **1983**, *105*, 1376–1377



J. Org. Chem. **1979**, *44*, 4557–4561



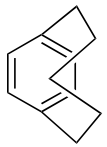


Tetrahedron Lett. **1984**, *25*, 3895–3896

Tetrahedron Lett. **1984,** *25*, 557–560

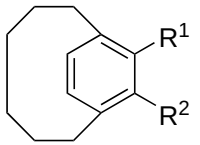
Prof. Yoshito Tobe

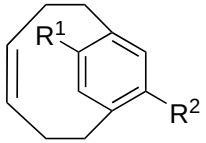
- Contribution to the synthesis of [5]Paracclophane



J. Am. Chem. Soc. **1985**, *107*, 3716–3717

- Synthesis of [6]Paracyclophanes and [6]Paracycloph-3-enes

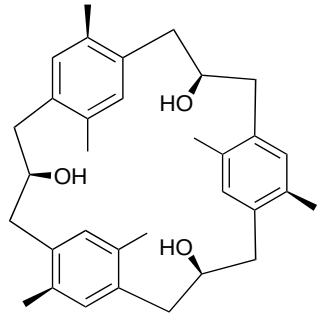




Tetrahedron Lett. **1958**, *42*, 1851–1858

J. Am. Chem. Soc. **1987**, *109*, 1136–1144

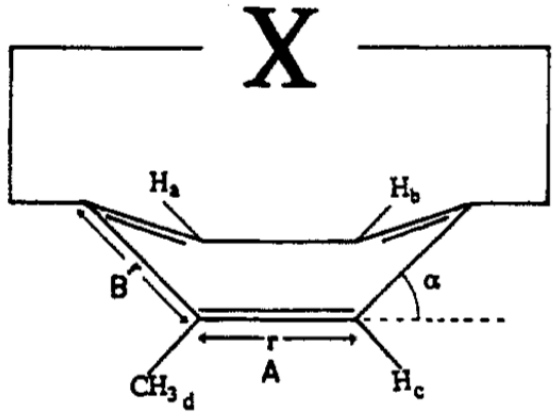
- Host–guest complexations with cyclophanes



Tetrahedron Letters **1987**, *28*, 3825–382

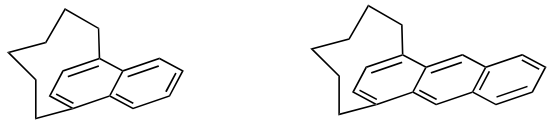
Prof. Yoshito Tobe

- Study of distorted aromatic systems



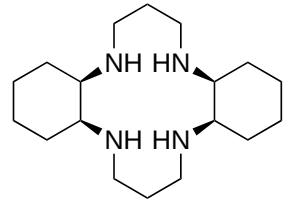
J. Am. Chem. Soc. **1990**, *112*, 7537–7540.

- Naphtalenophane and Anthracenophane



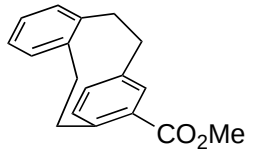
Y. Tobe, R. Gleiter, and co-workers
J. Am. Chem. Soc. **1990**, *112*, 8889–8894.

- Nickel – cyclam complexes



Inorg. Chem. **1992**, *31*, 676–685.

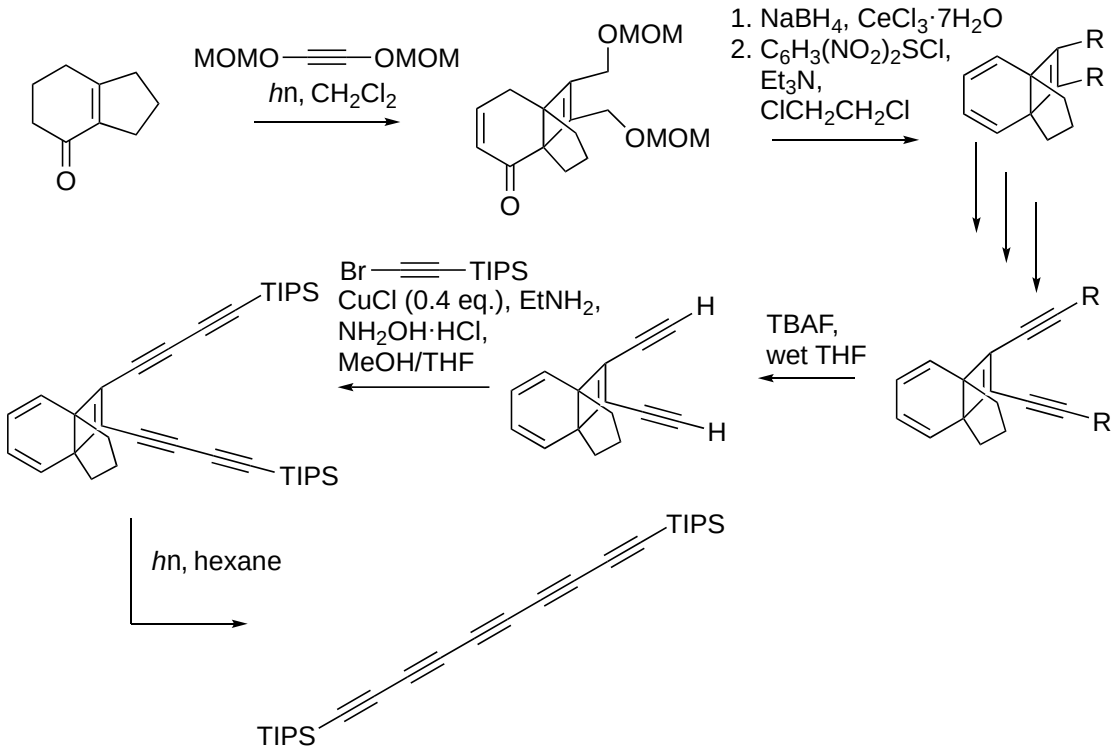
- Highly strained cyclophanes



J. Am. Chem. Soc. **1993**, *115*, 1173–1174.

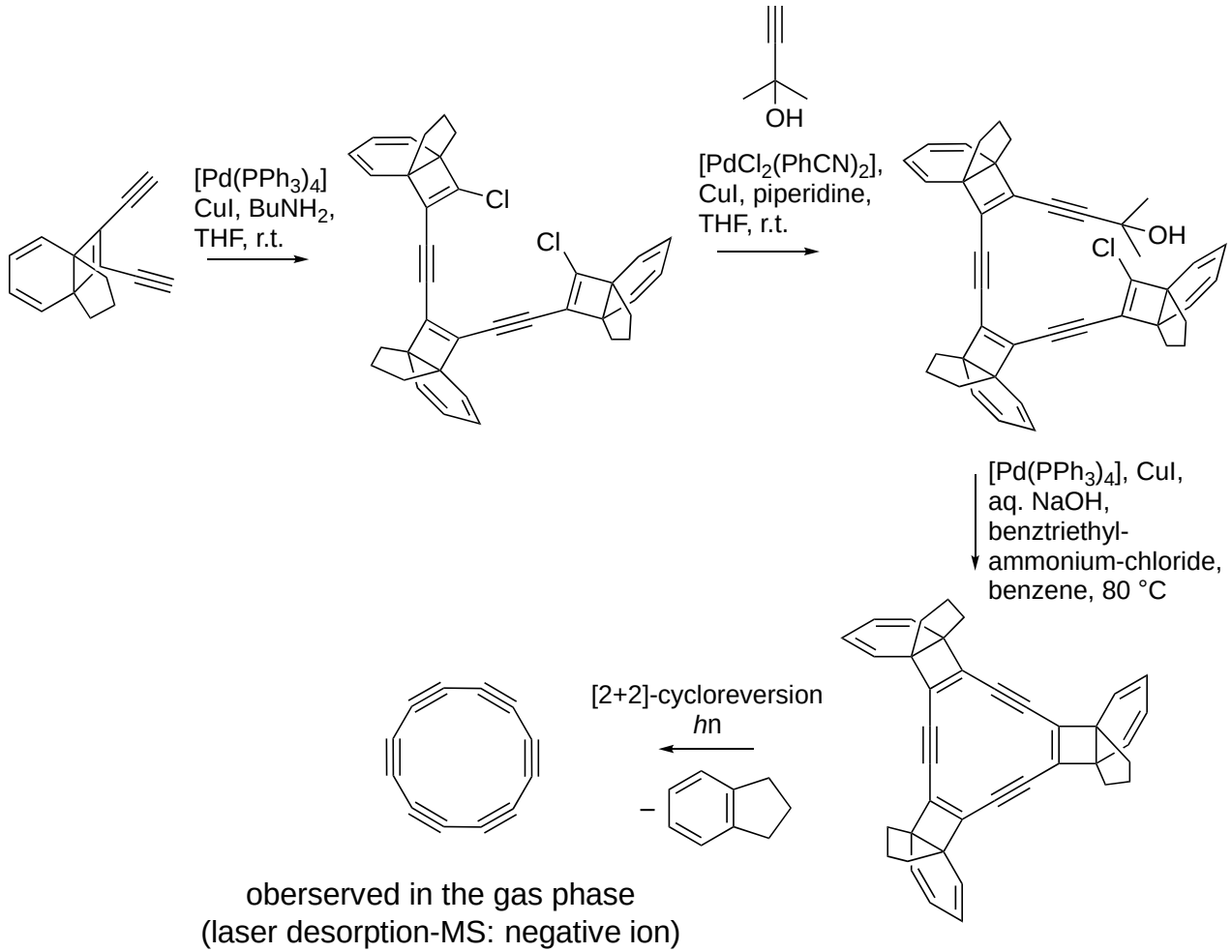
Prof. Yoshito Tobe

- Synthesis of linear polyynes



[*J. Org. Chem.* **1994**, *59*, 1236–1237]

- Synthesis of cyclocarbons

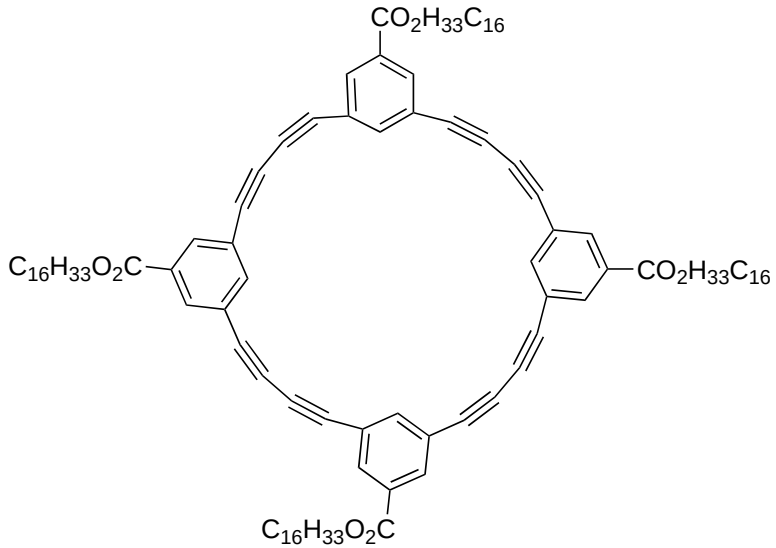


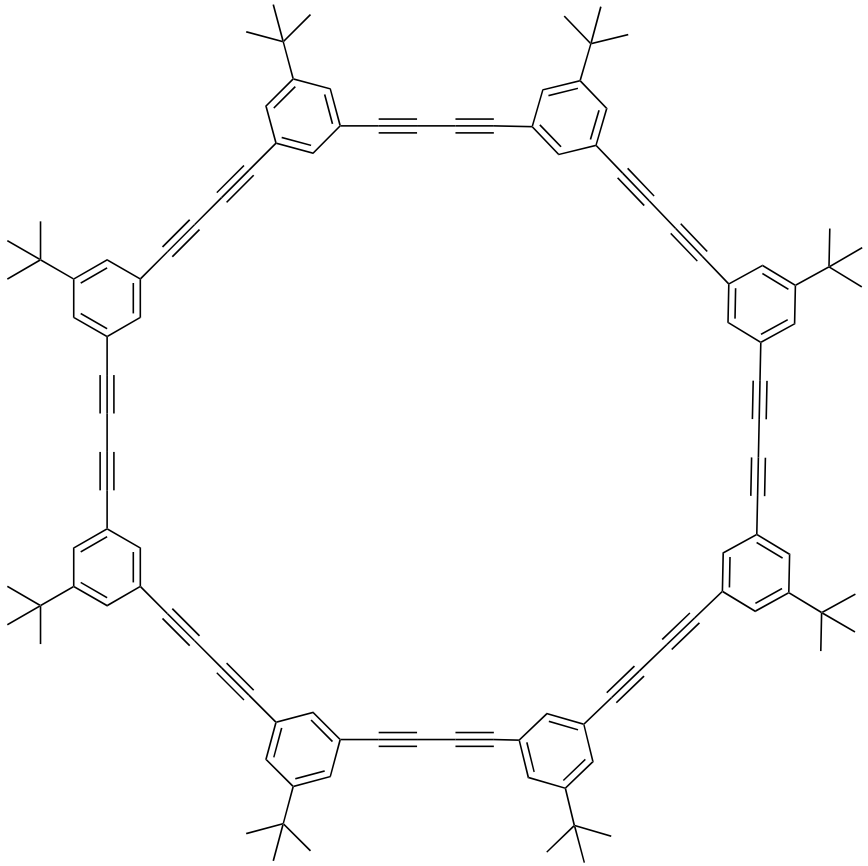
oberserved in the gas phase
(laser desorption-MS: negative ion)

[*Angew. Chem.* **1996**, *108*, 1923–1926]

Prof. Yoshito Tobe

- Ethynylbenzene macrocycles

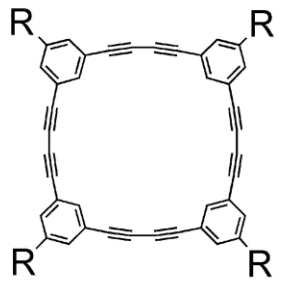




Tetrahedron Lett. **1996**, *37*, 9325–9328

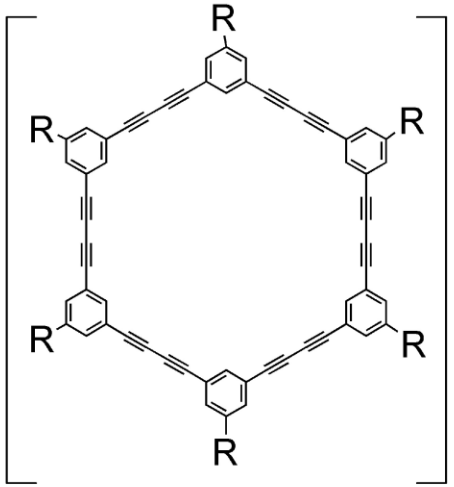
Prof. Yoshito Tobe

- Ring-size dependent stability of macrocycles

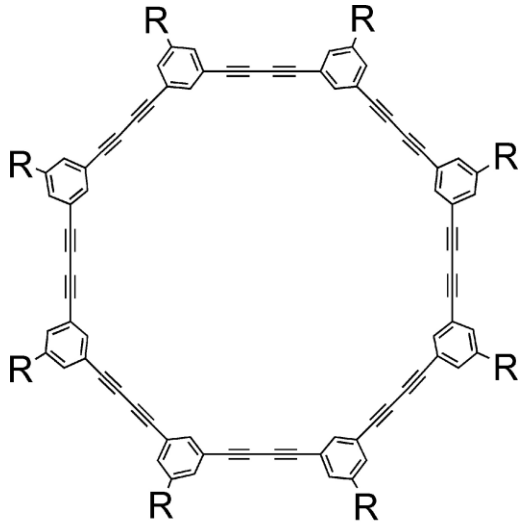


stable (mp 152-153 °C)

R = $CH_2OC_8H_{17}$



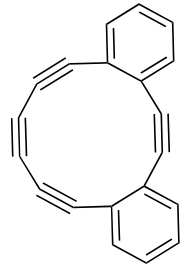
unstable
(not isolated in a pure state)



stable (mp 140-141 °C)

K. Hirose, Y. Tobe, and co-workers
J. Org. Chem. **2006**, *71*, 401–404

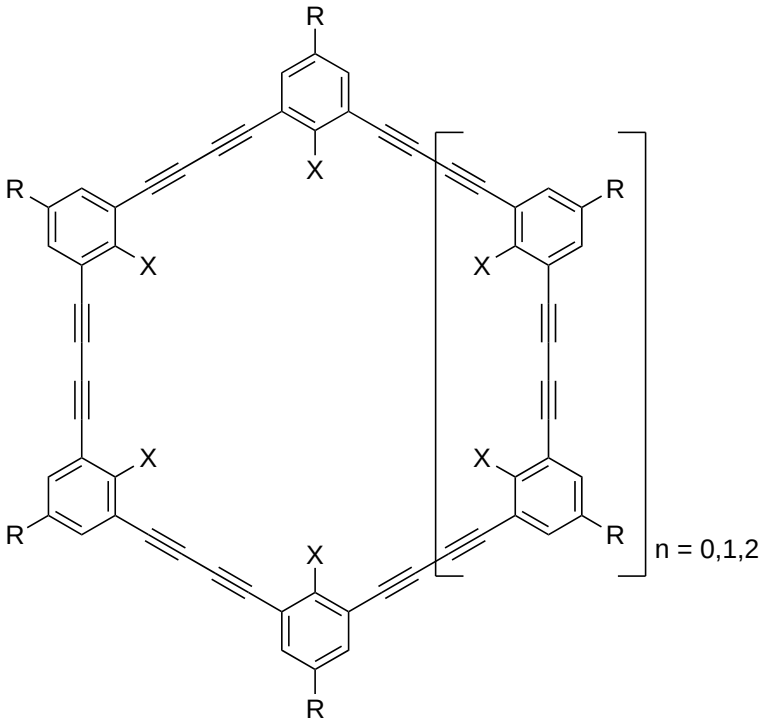
- Highly strained systems

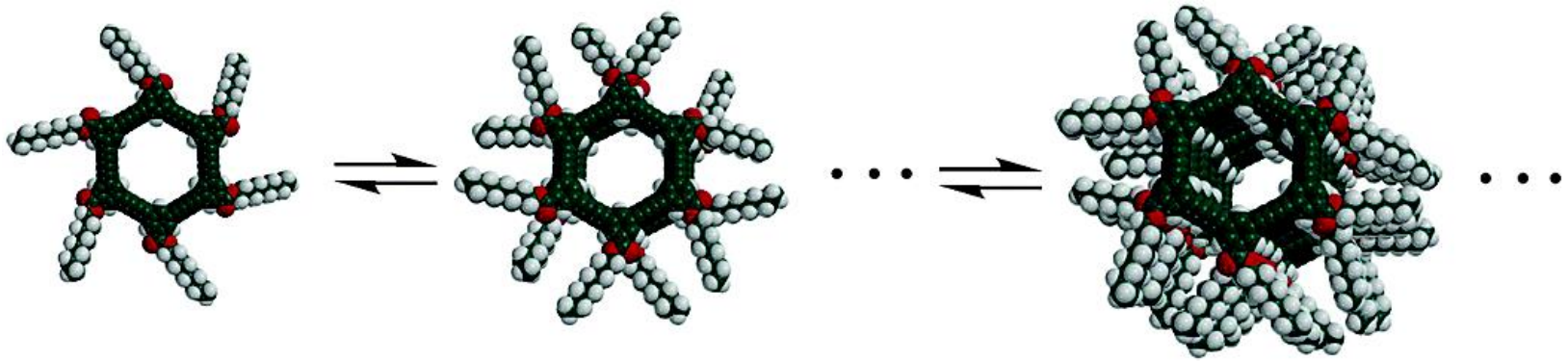


J. Am. Chem. Soc. **2003**, *125*, 5614–5615

Prof. Yoshito Tobe

- Syntheses and self-association of *m*-diethynylbenzene macrocycles

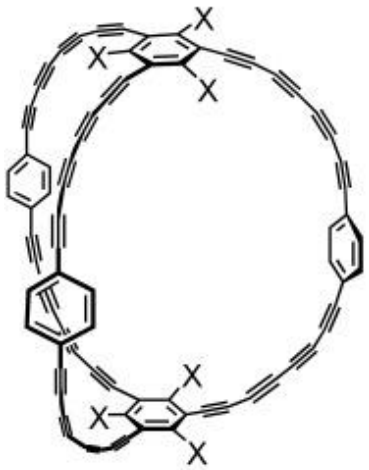




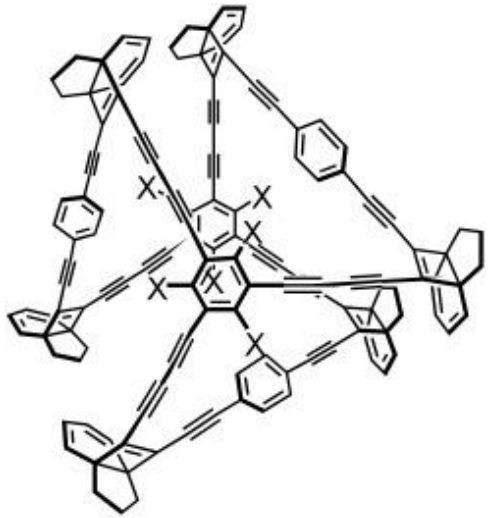
Y. Tobe, K. Hirose, and co-workers *J. Am. Chem. Soc.* **2002**, *124*, 5350–5364.

Prof. Yoshito Tobe

- More complex alkyne-based systems



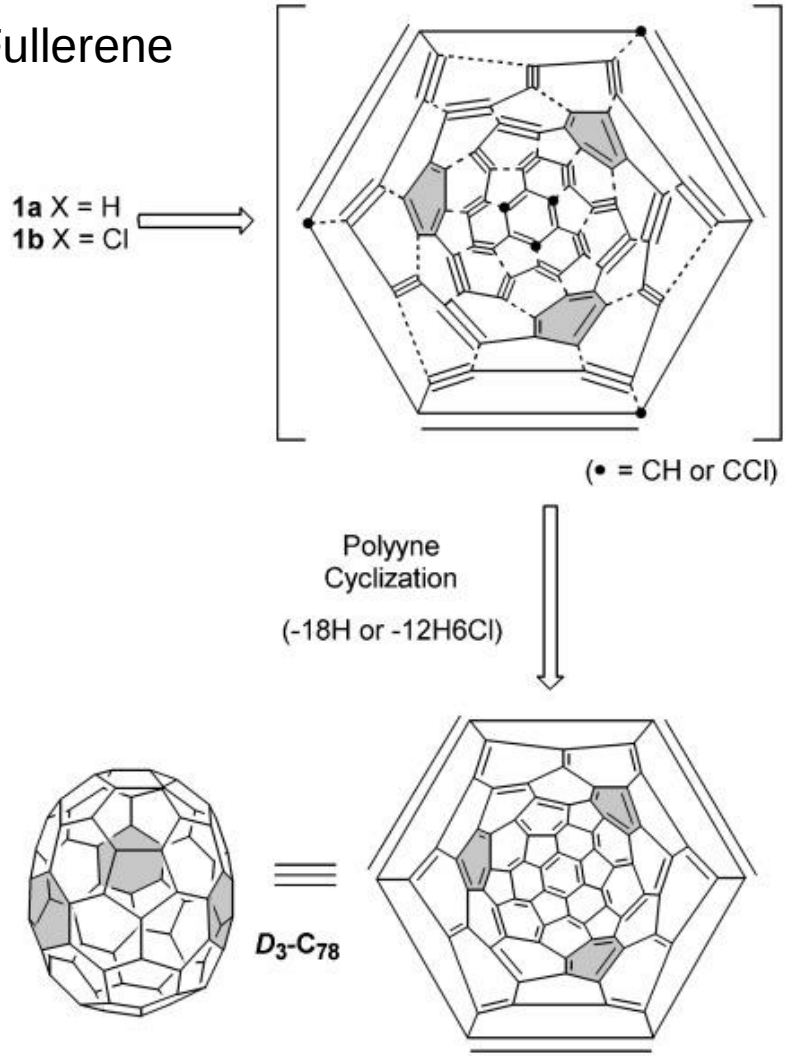
1a X=H ($C_{78}H_{18}$)
1b X=Cl ($C_{78}H_{12}Cl_6$)



2a X = H
2b X = Cl

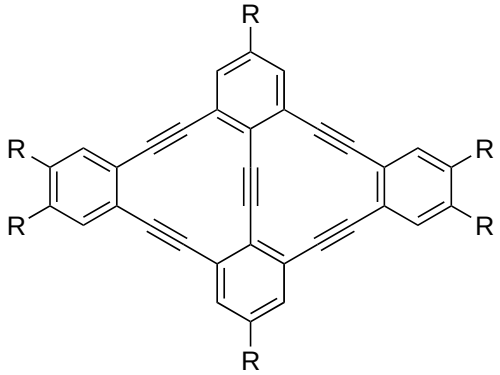
Chem. Eur. J. **2005**, *11*, 1603–1609

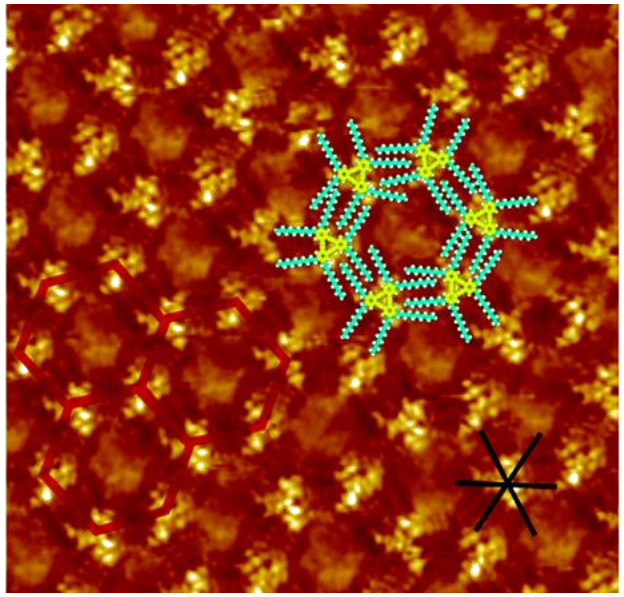
- Synthesis of C_{78} Fullerene



Prof. Yoshito Tobe

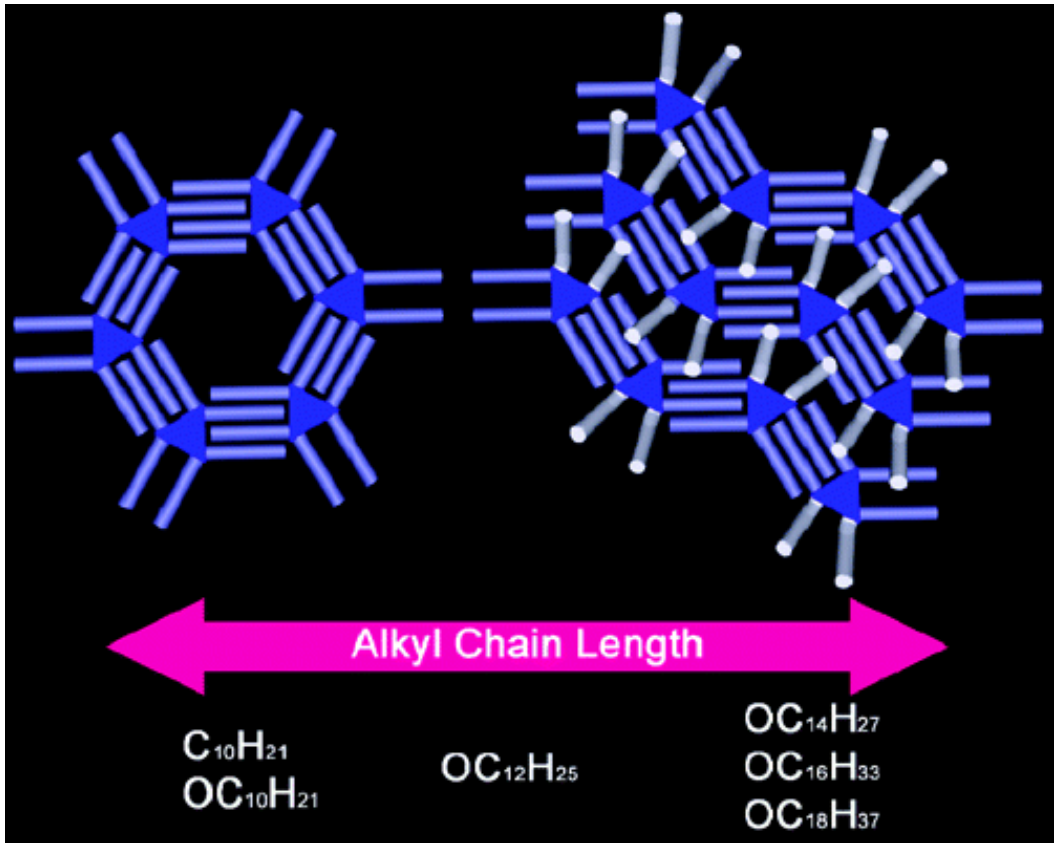
- From macrocycles to molecular networks





[Y. Tobe, S. De Feyter, and co-workers
J. Am. Chem. Soc. **2006**, *128*, 3502–3503.]

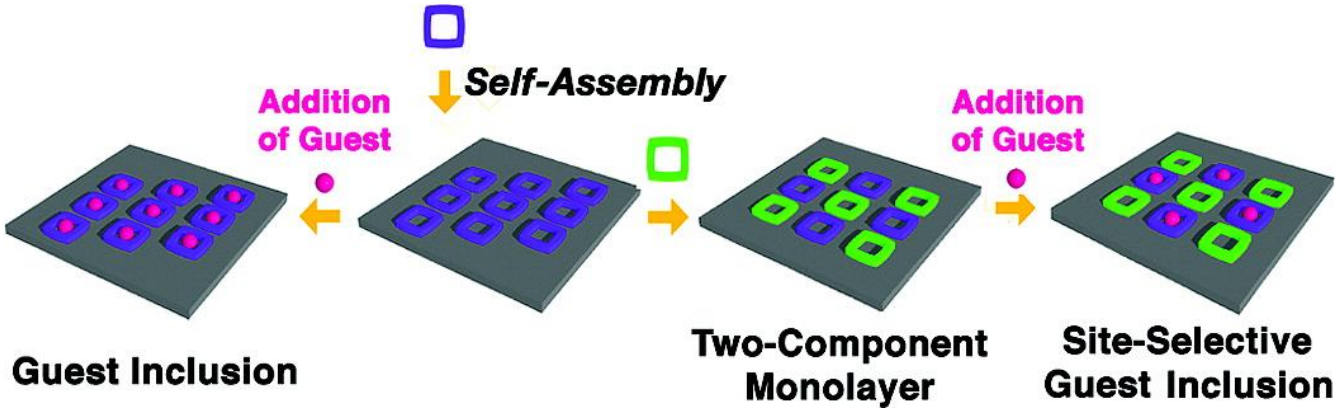
- Study of dependence of alkyl chain length (R) on network structure



[De Feyter, Y. Tobe, and co-workers
J. Am. Chem. Soc. **2006**, *128*, 16613–16625]

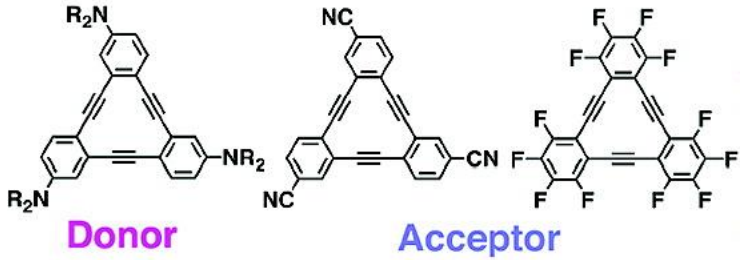
Prof. Yoshito Tobe

- Guest inclusion into networks

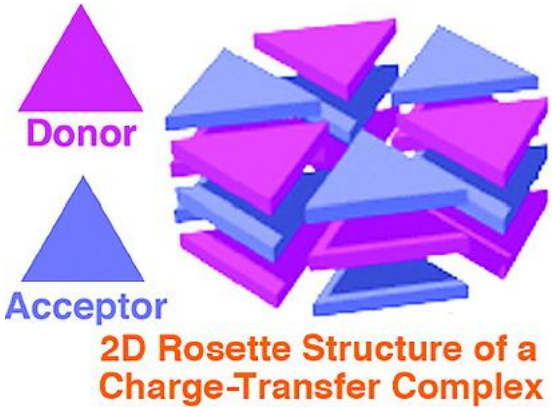


S. De Feyter, Y. Tobe and co-workers, *J. Am. Chem. Soc.* **2008**, *130*, 6666–6667

- Donor-acceptor complexes



Donors and Acceptors Based on Dehydrobenzo[12]annulene

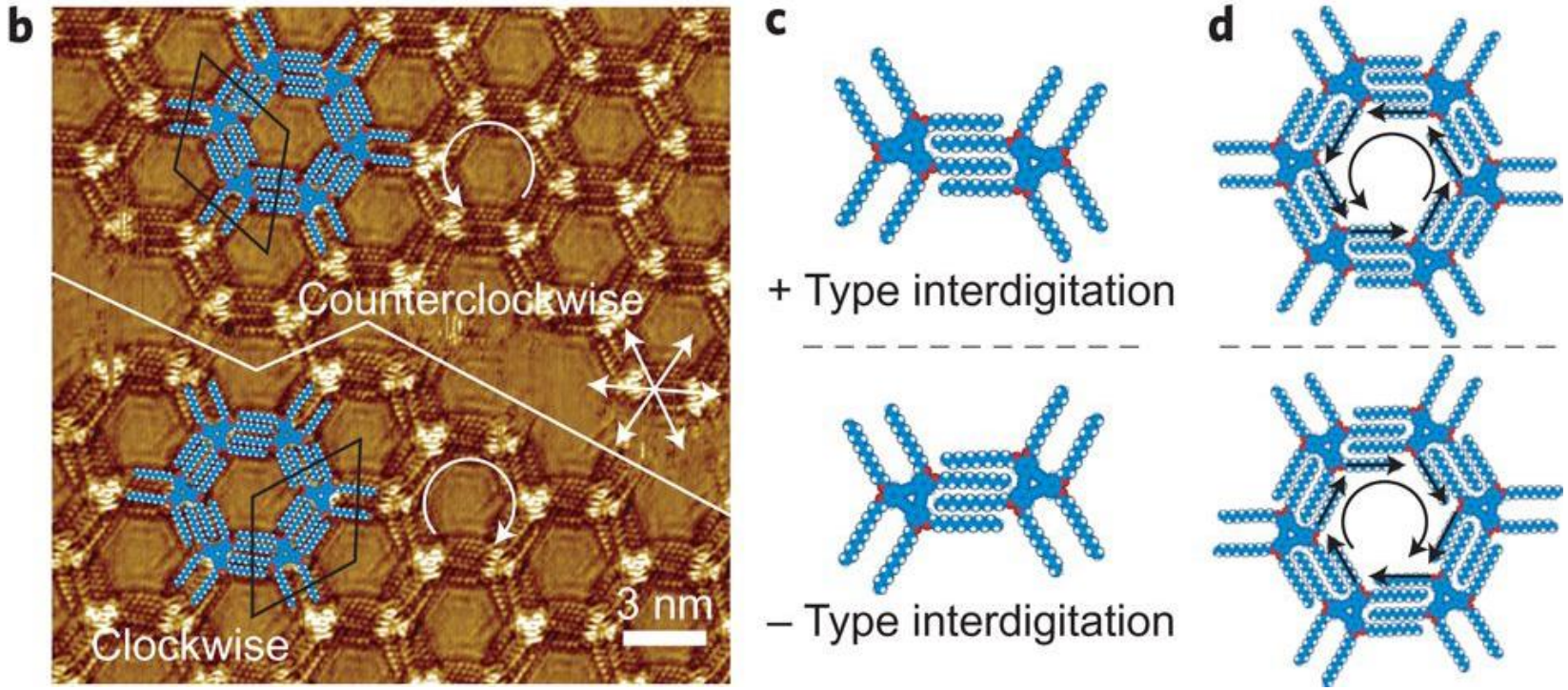


2D Rosette Structure of a Charge-Transfer Complex

J. Am. Chem. Soc. **2008**, *130*, 14339–14345

Prof. Yoshito Tobe

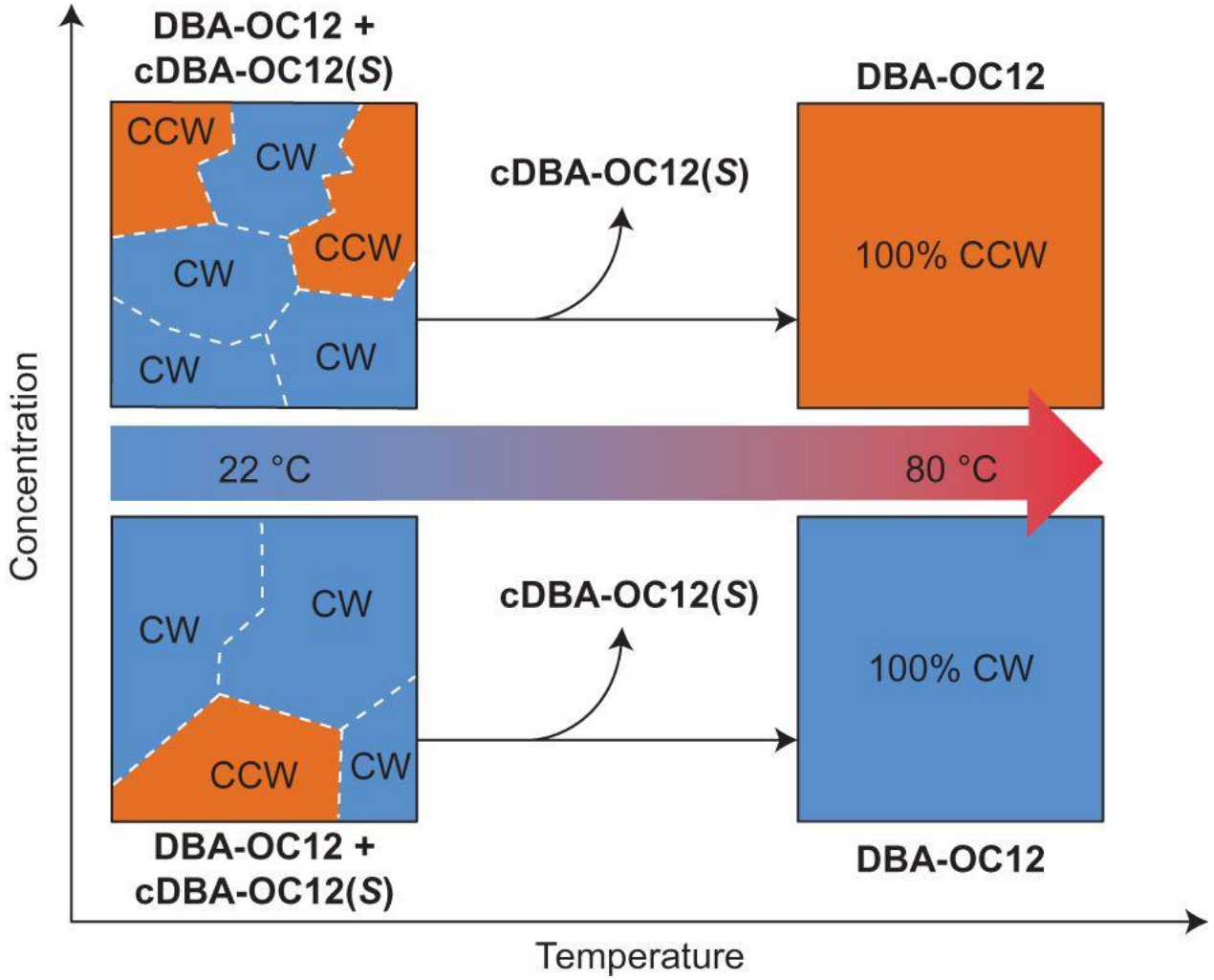
- 2D homochiral molecular networks e.g. by using homochiral monomers



K. Tahara, H. Yamaga, E. Ghijsens, K. Inukai, J. Adisoejoso, M. O. Blunt, S. De Feyter, Y. Tobe, *Nature Chem.* **2011**, *3*, 714–719.

Prof. Yoshito Tobe

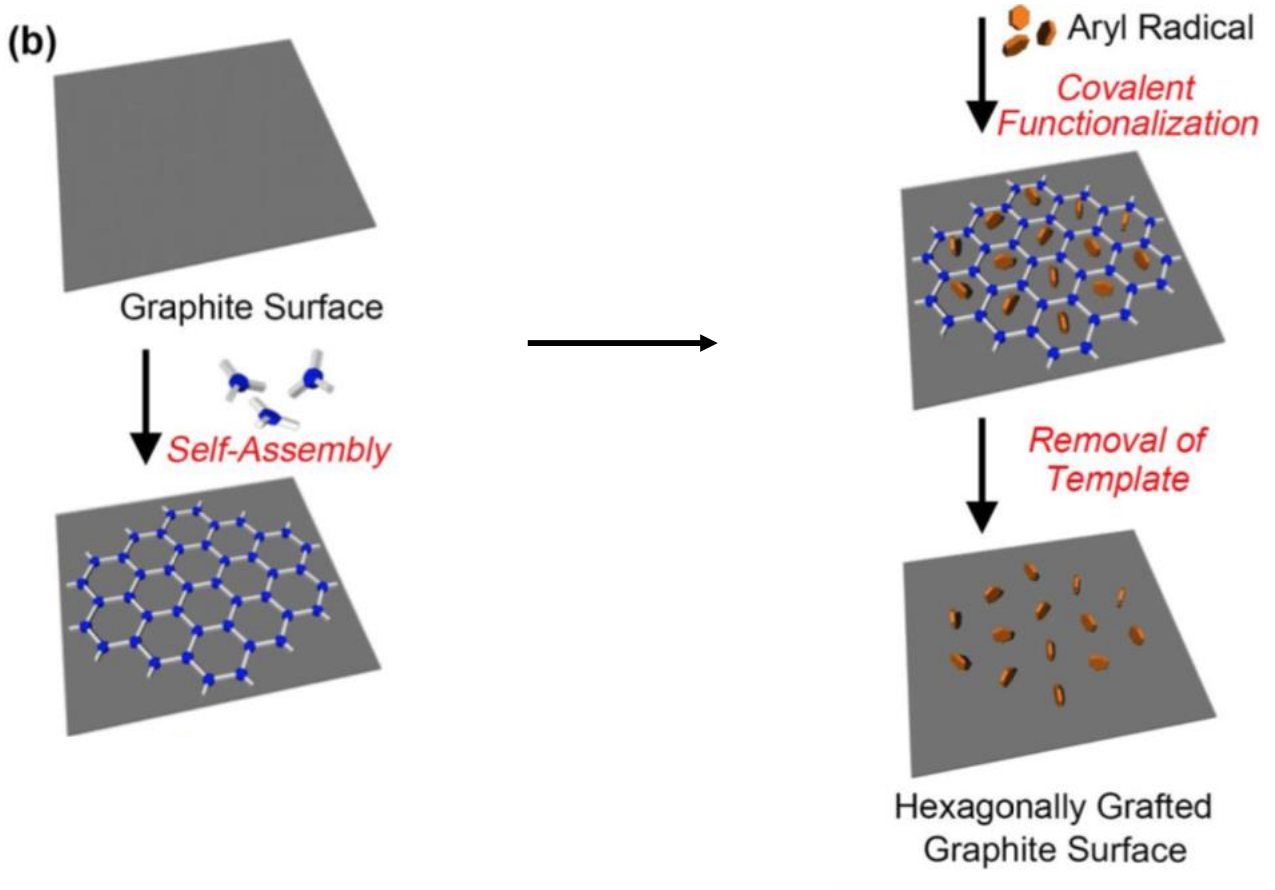
- Influence on handedness of molecular network by chiral induction



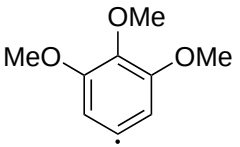
Y. Tobe, S. De Feyter, and co-workers
Nature Chem. **2016**, *8*, 711–717

Prof. Yoshito Tobe

- Most recent publication: chiral functionalization of graphitic surfaces



Aryl radical:



S. De Feyter, Y. Tobe, and co-workers *J. Am. Chem. Soc.* **2020**