

cfaed Seminar Series

DATE: July 08, 2019
TIME: 03:00 PM – 04:00 PM
LOC: Seminar room HEM 219 (second floor)
 Walther-Hempel-Building, Mommsenstr. 4, 01069 Dresden



GUEST SPEAKER:

Professor Tien-Yau Luh

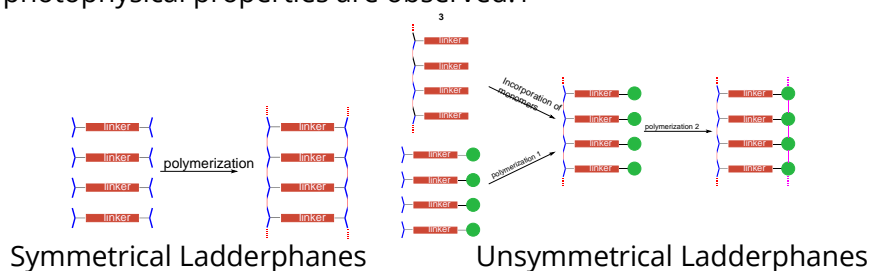
Department of Chemistry, National Taiwan University, Taipei, Taiwan

TITLE:

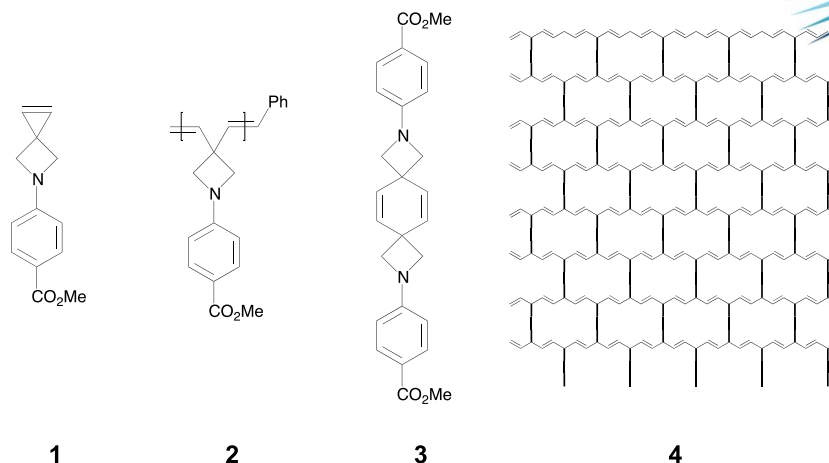
“From One-dimensional Ladderphanes to Two-dimensional Stromaphanes”

ABSTRACT:

We have extensively investigated the chemistry of ladderphanes and related polymers.¹ The polymeric backbones in these ladderphanes are obtained by ring opening metathesis polymerization (ROMP) of norbornene and cyclobutene. Both symmetrical and unsymmetrical ladderphanes are obtained conveniently. It is worthy to note that an aniline pendant would be indispensable for controlling the stereoselectivity of the ROMP reactions. Because the linkers in ladderphanes are in close proximity, various interesting photophysical properties are observed.¹



When cyclopropene derivative 1 was used, polymer 2 was obtained with all double bonds in trans configuration. In addition, dimeric cyclohexadiene 3 was isolated and the separation of the small molecule 3 from polymer 2 was in general trival. The 100% E-specificity for the formation of 2 suggests that the reaction may behave similarly as that in DNA proofreading and repair in replication.² It is worth mentioning that the adjacent pendants in 2 are oriented towards opposite directions. This structural feature would be useful for the synthesis of a new type of brick-wall-like two-dimensional polymers, stromaphane 4, under homogeneous conditions.



1. For reviews, see: Luh, T.-Y. *Acc. Chem. Res.* 2013, 46, 378; Luh, T.-Y.; Ding, L. *Tetrahedron* 2017, 73, 6487. Lai, G.; Luh, T.-Y. *Bull. Chem. Soc. Jpn.* 2018, 91, 262.
2. For reviews, see: Lindahl, T. *Angew. Chem. Int. Ed.* 2016, 55, 8528-8534 (2016); Modrich, P. *Angew. Chem. Int. Ed.* 2016, 55, 8490-8501 (2016); Sancar, A. *Angew. Int. Ed.* 2016, 55, 8502-8527.

PROFILE OF PROFESSOR TIEN-YAU LUH:

Tien-Yau Luh obtained his Ph.D. degree from the University of Chicago (with L. M. Stock) in 1974. After spending two years of postdoctoral research at the University of Minnesota (with P. G. Gassman), he joined the faculty at the Chinese University of Hong Kong in 1976 and moved back in 1988 to his alma mater, National Taiwan University, where he is currently NTU Chair Professor. He has published near 300 papers and received numerous awards (e.g. Chemical Society (Taiwan) Award, 2012, JSPS Fellow, 2010, NTU Distinguished Professor of Chemistry, 2006-2012, Distinguished Research Fellow, Institute of Chemistry, Academia Sinica, 2001-2004, National Chair Award, Ministry of Education, 1999-2002, etc.) He retired in 2016 and was immediately appointed as Distinguished Chair Professor at the same Department. He is also serving as a member of the advisory/editorial board for *Chemical Communications*, the *Chemical Record*, *Chemistry-A European Journal*, *Chemistry-An Asian Journal*, and *Bulletin of the Chemical Society of Japan*, *Tetrahedron*, and *Tetrahedron Letters*. He organized the OMCOS meeting in Taipei in 2001 and has been a member of the Advisory Board since 1997. He has trained more than 160 students (undergraduates, graduate students towards M.S. or Ph.D. degrees, and postdoctoral fellows) and 52 of them are holding faculty positions in academic institutions all over the world. His current research interests include chemistry of materials and organometallics in organic and polymer synthesis.