F. MORITA, Y. KISHIDA, Y. SATO, H. SUGIYAMA, M. ABEKURA, J. NOGAMI, N. TORIUMI, Y. NAGASHIMA, T. KINOSHITA, G. FUKUHARA, M. UCHIYAMA, H. UEKUSA, K. TANAKA* (TOKYO INSTITUTE OF TECHNOLOGY, JAPAN)

Design and Enantioselective Synthesis of 3D π-Extended Carbohelicenes for Circularly Polarized Luminescence
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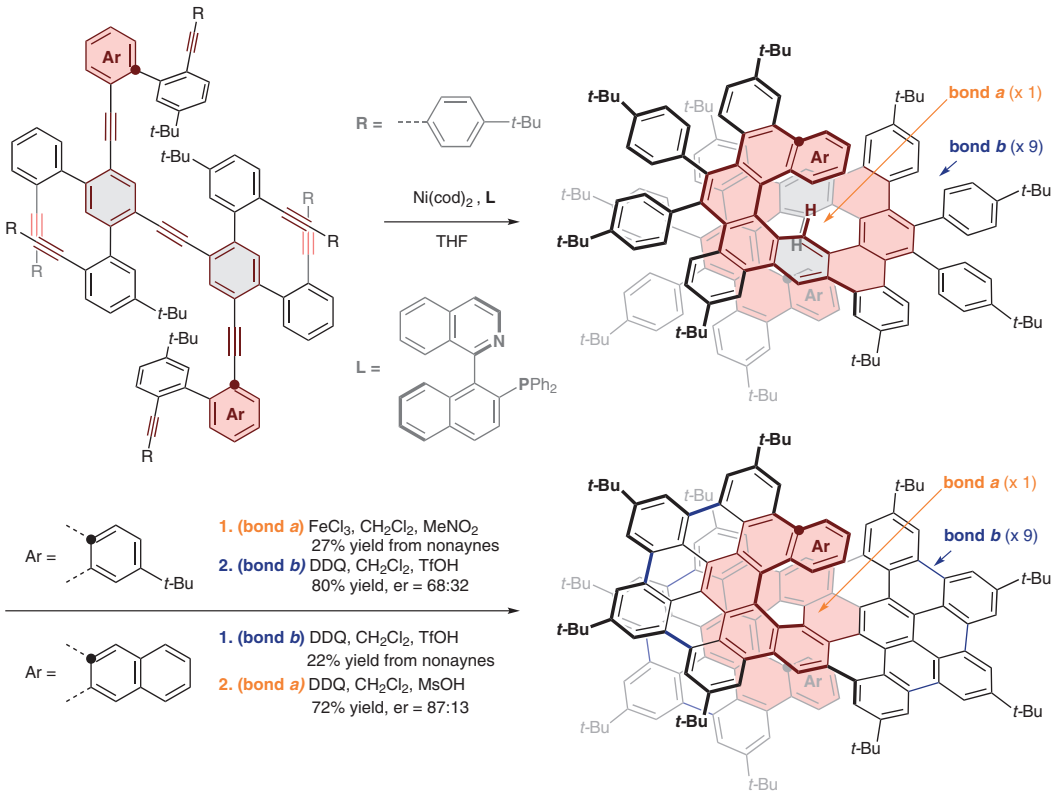
Enantioselective Syntheses of π-Extended Carbohelicenes



Significance: π-Extended helicenes of intrinsic chirality are promising circularly polarized luminescence (CPL) emitters, but their preparations and resolution are challenging. Here, enantioselective syntheses of 3D π-extended carbo[11] and carbo[13] helicenes with bright CPL emissions and large asymmetry coefficients are achieved.

Comment: The synthesis features enantioselective triple [2+2+2] cycloaddition, followed by multifold annulation through Scholl reaction, which further reduces the helicene diameter. Crystallization of the enantioenriched helicene products readily yields nearly pure enantiomers.

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Category
Synthesis of Materials and Unnatural Products

Key words
circularly polarized luminescence
carbohelicenes
[2+2+2] cycloaddition
Scholl reaction

Synfact of the Month