

Lemniscular [16]cycloparaphenylene: a radially conjugated figure-eight aromatic molecule.

Autorzy

Kabali Senthilkumar
Mateusz Kondratowicz
Tadeusz Lis
Piotr J. Chmielewski
Joanna Cybińska
José L. Zafra
Juan Casado
Thomas Vives
Jeanne Crassous
Ludovic Favereau
Marcin Stępień

Rok wydania

2019

Czasopismo

Journal of the American
Chemical Society

Numer woluminu

141

Strony

7421-7427

DOI

10.1021/jacs.9b01797

Kolekcja

Naukowa

Streszczenie

A cycloparaphenylene-based molecular lemniscate (CPPL) was obtained in a short synthesis involving masked *p*-phenylene equivalents. The strained figure-eight geometry of CPPL is sustained by the incorporated 9,9'-bicarbazole subunit, which also acts as a stereogenic element. The shape of the distorted [16]cycloparaphenylene nanohoop embedded in CPPL is accurately approximated with a Booth lemniscate. The structure of CPPL, investigated using NMR and Raman spectroscopic methods, revealed strain-dependent features, consistent with the variable curvature of the ring. The electronic and optical properties of CPPL combine features more characteristic of smaller cycloparaphenylenes, such as a reduced optical bandgap and red-shifted fluorescence. CPPL was resolved into enantiomers, which are configurationally stable and provide strong chiroptical responses, including circularly polarized luminescence.

Adres publiczny

<http://dx.doi.org/10.1021/jacs.9b01797>

Strona internetowa wydawcy

<https://www.acs.org/content/acs/en.html>

Język

Angielski

Typ publikacji

Artykuł

Plik został wygenerowany dnia 2026-10-06 19:59:17

Adres w repozytorium <https://old.chem.uni.wroc.pl/pl/repozytorium/vQLkLF9>.