Significance: The authors have designed and synthesized a soluble and highly rigid macromolecular wheel of the sum formula C1878H2682. The six ‘spokes’ of the hexagonal wheel are assembled, joined to the central hexaphenylbenzene unit, and cyclized via palladium coupling in a convergent and modular fashion.

Comment: The spokes maintain shape-persistence and further solubilize the rigid molecule with numerous dodecyl side chains. The yields in the synthetic sequence vary from modest (49%) to excellent (98%). The isolated product is a yellow fluorescent solid.

12 nm Soluble Wheel from c. 1878