Efficient Three-Fold Symmetrical Nanographene Synthesis

Significance: An efficient synthesis of nanographenes is reported. The key is recognizing that hexa-cata-hexabenzocoronene (c-HBC) possesses three-fold symmetry and that only seven of the 13 benzene rings are enough to build up c-HBC. 2 reacts with three equivalents of an aromatic aldehyde via Friedel–Crafts and Scholl reaction.

Comment: Alkoxy groups for R\(^1\) and R\(^2\) were employed to generate electron-rich compound 2 which is more reactive towards Friedel–Crafts and Scholl reaction. Bromo-substituted (R\(^3\)) c-HBC can be potentially utilized to prepare more functionalized nanographenes.