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Living Annulative π -Extension Polymerization for Graphene Nanoribbon Synthesis
Nature **2019**, 571, 387–392.

Reaching the APEX in Controlled Synthesis of 2D Nanomaterials

Category

Synthesis of
Materials and
Unnatural Products

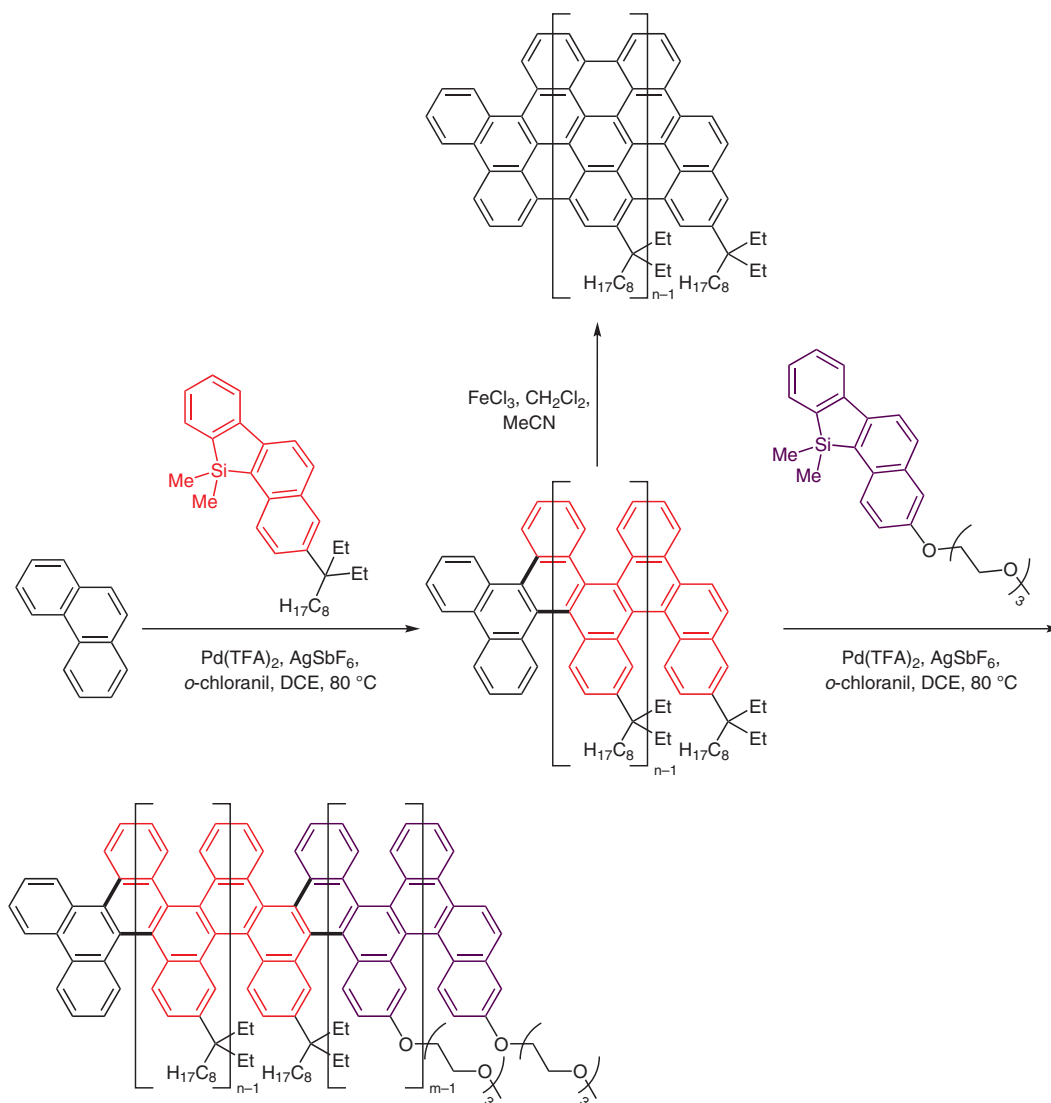
Key words

graphene
nanoribbons

living annulative π -
extension
polymerization

block copolymers

Synfact
of the
Month



Significance: A living method to grow narrow dispersity fjord-type graphene nanoribbons (as low as $\bar{D} = 1.03$) with controlled degree of polymerization (7–391) is disclosed. Scholl oxidation of this precursor affords armchair-type nanoribbons, whereas further polymerization affords block copolymers.

Comment: The precise control over structure affords the opportunity to make block copolymers with conjugated (e.g., different benzonaphthosiloles) or nonconjugated (e.g., functionalized initiators) blocks, which could lead to interesting optoelectronic or physical/self-assembly properties.

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