Utilizing Cyclopentadiene for the Design of New Polyenyne Motifs

**Significance:** Conjugated polynes are a unique class of polymers with backbones consisting entirely of sp- and nonaromatic sp²-hybridized carbon atoms. Despite its attractive electronic properties and potential application in materials science, the discovery of new polynes motifs remains challenging because of the dearth of suitable precursors and preparatory methods. Herein, Pietrangelo and co-workers report the synthesis of poly(cyclopentadiylene ethynylene)s (PCEs) and poly(p-phenylene ethynylene)/poly(cyclopentadiylene ethynylene) copolymers (PPECEs), in which a cyclopentadiene motif is incorporated into their monomeric structures.

**Comment:** Interestingly, the authors’ results suggest that the solubilizing group structure of the PCEs has an effect on the polymer molecular weight and optical absorption profiles. In contrast, the solubilizing group structure of copolymer PPECEs has little effect on their optical absorption. Taken together, these results indicate that the cyclopentadiene constituents are responsible for the low-energy electronic transitions of PCEs. Evaluation of PPEs as semiconductors in organic electronic devices is under way.