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## Synthesis and properties of curved *π*-conjugated molecules

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Curved  $\pi$ -conjugated molecules with three-dimensional (3D) structures have been the subject of intensive research because of not only for their structural beauty but also their many potential applications in molecular electronics. This presentation will cover our recent reports in the synthesis of 3D  $\pi$ -conjugated molecules and the elucidation of their properties. In particular, cycloparaphenylenes (CPPs), which consist benzene rings connected at the para positions, and a ball-like 3D molecule were synthesized based on the platinum-mediated assembly of  $\pi$ -units and subsequent reductive elimination of platinum. Despite extremely high strain of the target molecule, reductive elimination of platinum successfully took place with high efficiency. Several size-dependent properties of CPPs, namely the photophysical and redox properties were also clarified. Theoretical and electrochemical studies suggest that small CPPs and their derivatives should be excellent lead compounds for molecular electronics.

## **Biography**

Eiichi Kayahara received his B.Sc. and Ph.D. from Osaka City University and Kyoto University in 2006 and 2011. He studied the precision control of polymer structure based on heteroatom-mediated living radical polymerization reaction under the supervision of Professor Shigeru Yamago. During his educational career, he was a visiting student of Professor Christopher C. Cummins group in Massachusetts Institute of Technology, United States (2008). He was also a recipient of JSPS Predoctoral Fellowship from 2008 to 2011. Since 2011, he has been an Assistant Professor at Institute for Chemical Research, Kyoto University.

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