

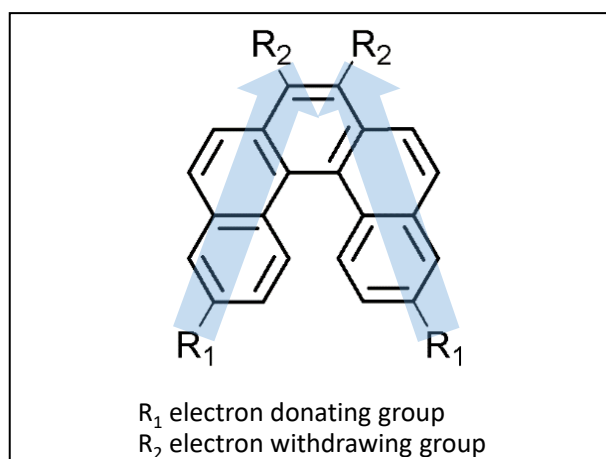
## Pentahelicene derivatives as new materials for organic electronic devices

**Somboon Sahasithiwat, Thanasat Sooksimuang, Laongdao Kangkaew, Waraporn Panchan, Wannee Sookbangnop**

*National Metal and Materials Center (MTEC), Thailand*

Pentahelicene is a polycyclic aromatic hydrocarbon (PAH) composting of five benzene rings that fused at the ortho-position resulting in helical shaped molecule. Despite its highly conjugated structure which make it attractive to be use as an active material in organic electronic devices, it presents very low fluorescence quantum yield at only 0.04 that deters its role as an emitter in an OLED. In our laboratory, we managed to synthesized derivatives of pentahelicene by adding suitable electron donating and withdrawing groups at positions that allow electron to internally flow as a lamda-shaped in the molecule of derivatives. By doing so, we successfully obtained derivatives with high fluorescence quantum yield. Moreover, bandgap of the compounds could be adjusted as their conjugation length depend on substituted unit that been added. Finally, OLEDs and OFETs were fabricated using these derivatives as an active material.

Corresponding author e-mail : somboons@mtec.or.th



Pentahelicene derivatives

### Author Biography:

Name: Somboon Sahasithiwat

University/Institute: National Metal and Materials Technology Center (MTEC)

Research Interest: OLED and OFET fabrication and testing, Optical properties of organic semiconducting materials, X-ray Single crystal structure organic compounds.

### Picture

