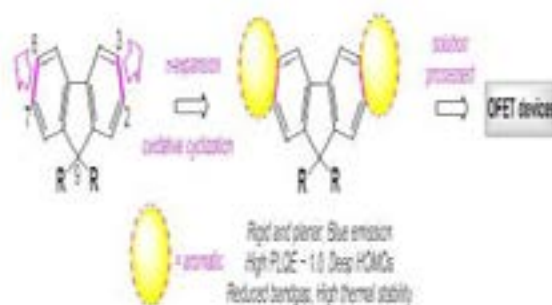


Facile synthesis, fluorescence and functional properties of π -expanded fluorenes

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π -Expanded 2D fluorenes were synthesized via double annulation at 2,3 and 6,7-faces of fluorene employing DDQ-mediated oxidative cyclization method with very high regioselectivity. All the newly synthesized larger fluorenes were thoroughly characterized by ¹H and ¹³C NMR, IR spectroscopy, and high-resolution mass spectrometry. The rigid and planar fluorenes thus obtained led to near-UV absorbance, bright blue emission with very high close-to-unity fluorescence quantum yields, and deep HOMO energy levels with excellent thermal stabilities. In addition, single crystal X-ray analyses of the newly synthesized fluorenes revealed potential π - π stacking that was found to depend on the substituents at either 9-position or at the aromatic ring. As these electron-rich fluorenes are very well soluble in common organic solvents, we have fabricated OFET devices for them

via the solution-process method and have characterized their charge transport performances. Some of these interesting results will be showcased in this presentation.



Biography

Jagarapu Ramakrishna is currently pursuing his PhD in Functional Organic Materials under the guidance of P Venkatakrishnan at IIT Madras, India. He is currently in final year of his PhD degree and expecting to defend his thesis early in 2018. His research interests are in the area of Synthetic Organic Chemistry, Organic Photonic, Electronic and Energy Materials.

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