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Synthesis of Asymmetric Anthracene Derivatives and Their Application for Blue Organic Light-Emitting Diodes

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Abstract

Aryl-substituted asymmetric anthracene blue host materials, 10-naphthalenyl-9-triphenylsilylanthracene (**6**) and 9-(4-tert-butylphenyl)-10-(2-methylphenyl)anthracene (**7**) were synthesized and characterized. Asymmetric anthracene derivatives **6** and **7** possessed high thermal stabilities that are suitable as emitting layer materials for blue organic light-emitting device. The electroluminescence emission maximum of BD-142-doped (7 wt %) two devices exhibited at 464 nm (for **6**) and 472 nm (for **7**), respectively. All devices showed good performances as blue host materials. The **7**-based device especially displayed higher device performances in terms of brightness (L_{\max} = 37090 cd/m²), luminous current density (7.26 cd/A), and external quantum efficiencies (5.80%) than those of **6**-based device.

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- Sang Kwak, Kang Lee, Ji-Eun Lee, Jisu Yoo, Yeonjin Yi, Hyoshik Kwon, Hyunbok Lee, Myung Park and Yongseog Chung, Synthesis and Electroluminescence Properties of 3-(Trifluoromethyl)phenyl-Substituted 9,10-Diarylanthracene Derivatives for Blue Organic Light-Emitting Diodes, *Applied Sciences*, 10.3390/app7111109, **7**, 11, (1109), (2017).
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