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Charge Transport Anisotropy in n-Type Disk-Shaped Triphenylene-Tris(aroyleneimidazole)s STEVEN ALVAREZ, YUE ZHANG, DAVID HANIFI, FRANCISCO ANTONIO, ANDREW PUN, LIANA KLIVANSKY, ALEXANDER HEXEMER, BIWU MA, YI LIU, Lawerence Berkeley National Laboratory — Two novel n-type disk-shaped molecules containing a triphenylene core and three fused naphthaleneimide imidazole or peryleneimide imidazole "arms" are synthesized and characterized. Their optical and electronic properties are consistent with the pi-extended structural feature of the aromatic cores. The n-type charge carrier mobilities of these molecules are evaluated by both field effect transistors and space-charge limited-current measurements, which show drastically different mobility anisotropy. A strong correlation between film morphology and the charge transport behavior is established by X-ray scattering and atomic force microscopic analyses.

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