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Self-assembly of PtBA-P3HT multi-arms star-like block copolymer at the air/water interface LEI ZHAO, XINCHANG PANG, CHAOWEI FENG, ZHIQUN LIN, NANOFM TEAM — A novel PtBA-P3HT multi-arm star-like diblock copolymer (BCP) was synthesized via a combination of atom transfer radical polymerization, quasi-living polymerization and click reaction. The self-assembly of PtBA-P3HT multi-arm star-like BCP at the air/water interface was systematically explored using the Langmuir Blodgett (LB) technique. The hydrophobic star-like BCP has 21 arms, with PtBA as the core and P3HT as the shell. At the air/water interface, the BCP molecules gradually assembled into domains composed of bundle-like structures under surface pressure, and finally formed the network structure in a way controlled by PtBA chain folding and P3HT chain stacking. The photoluminescence measurement showed that the formation of P3HT bundle in LB film led to enhanced luminescence due to the reduced inter-chain coupling.

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