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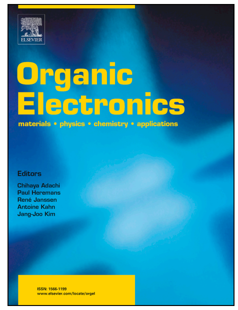

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Graphical Abstract

A dual-wavelength polymer random laser with the step-type cavity

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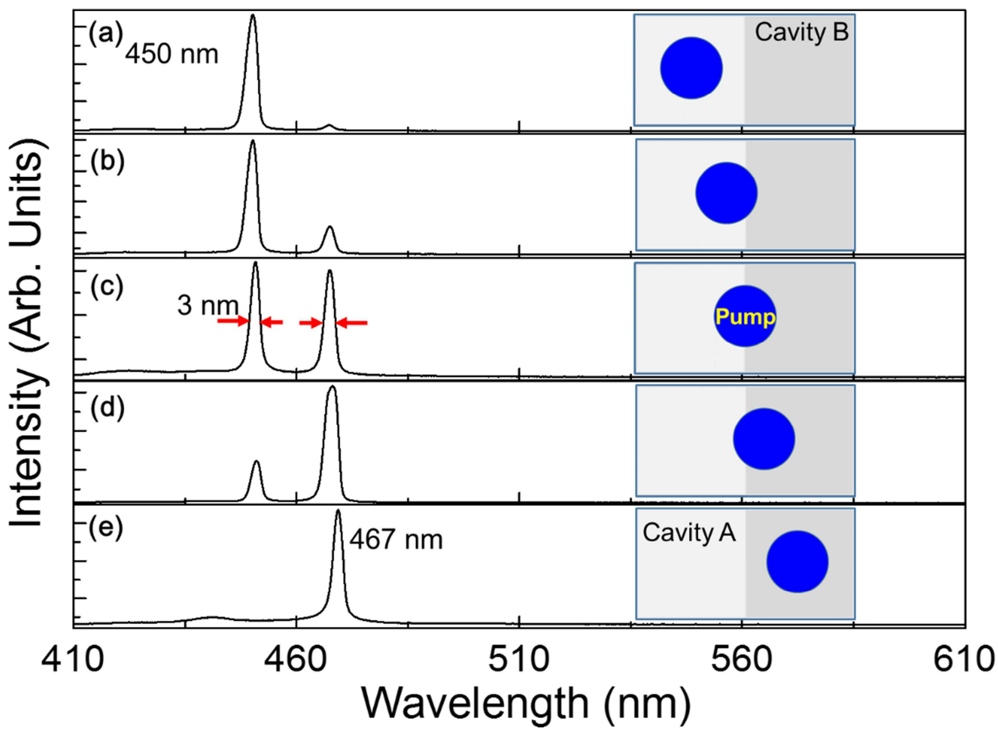

Fig. 6. The transition of dual wavelength with locations of the pump spot.

A dual-wavelength polymer random laser with step-type cavity (Cavity A and Cavity B) is fabricated by a spincoating method. The phase separation results in the random microstructure, providing a multiscattering mechanism for random lasing. The output emissions center on 450 nm and 467 nm, when the pump spot totally irradiates on Cavity A and Cavity B, respectively. The peaks of 450 nm and 467 nm simultaneously emerge when the pump spot locates on the border of step cavities. Thus, the wavelengths and intensities of the dual-wavelength polymer random laser can be adjusted by changing the pump location and the illuminated area ratio of Cavity A and Cavity B. This work provides a simple approach of dual-wavelength emission, showing potentials for the compact devices of random laser.