

## Abstract

### Random Lasing in Pi-conjugated Polymer Films

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When an active medium is placed in a resonance cavity, laser emission can occur. Surprisingly, laser emission can occur in systems where there is no obvious external cavity, the term “random lasing” is often applied to these various systems. We studied films of a Pi-conjugated polymer which showed narrow,  $< 0.5\text{nm}$ , emission lines. Photon counting established the lines were coherent, and therefore laser emission. Coherent backscattering showed the mean scattering length was approximately 10 emission wavelengths. The average Fourier transform of many individual locations revealed a universal resonator length in the films.

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