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**Multiplicative luminescence enhancement induced by chain relaxation in ultrathin films of a conjugated polymer (MEH-PPV)** CHIH-WEI YANG, JUO-HUEI JOU, ARNOLD CHANG-MOU YANG, Department of Materials Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan — A surprising multiplication of light-emitting efficiency was observed in dewetting process of the conjugated luminescent polymer of poly (2-methoxy- 5-(2'-ethyl-hexyloxy)-1,4-phenylene vinylene] (MEH-PPV). The luminescent efficiency increased with the dewetting process and became about six-fold when the polymer film ruptured into tiny droplets. This enhancement appeared to be related to the carrier transport mechanisms and the motions of polymer chains. The effects of inter-molecular energy transport and molecular deformation of polymer chains were studied by examining the emission behavior in liquid and solid solutions. It was found that the molecular movements during stretching in the glassy state were quite different from that in the dewetting process. The latter was dominated by disengagement of inter-molecular entanglements while the former was strongly influenced by trapping mechanisms of chain entanglements due to rapid local molecular strains. This work is supported by National Science Council of Taiwan.

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