

Increment of PDA's Fluorescence Response to Microfluidic Mechanical Stress via Silica Nano-Particle Bombardment

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Unique fluorescence and blue-to-red color transition feature of Polydiacetylene(PDA) in response to external stimuli attracted much attention recently. Despite the immense studies on optical response of film or strain form of PDA to thermal effect, self-assembly particles and mechanical stress effect haven't been considered very well. In this work, self-assembled PDA particles are fabricated by a co-current microfluidic system and cured with UV irradiation to fully polymerize. The obtained PDA particle was trapped in a glass capillary channel, and exposed to mechanical stress via a microfluidic flow stress generator. Mechanoluminescence response of the particle via collision with silica nano-particles was also investigated.