

Photoluminescence and optical nonlinearity of CdS quantum dots synthesized in functional copolymer hydrogel template

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1. Preparation and Characterization of copolymer p(MMA-co-AAc)

A) Calculation of AA content in PMMA-co-AA(25)

Molar percentage (f) of AA or carboxyl acid content in the copolymer = 100x

where 'x' is the mole fraction of AA in the copolymer.

Peak intensities are set as $I_c = x$, $I_a = 3(1-x)$

where I_a and I_c are the relative intensities of methyl protons (a) and methine proton (b) in MMA and AA respectively

$$x = \frac{3(I_c/I_a)}{1 + 3(I_c/I_a)}$$

$$f = 100x$$

$$f = 25\%$$

From the weight percentage of monomers used for copolymerization, the mole percentage of AA is 28%.

B) Calculation of AA content in PMMA-co-AA(27).

Using the above calculation, $f = 27\%$

From the weight percentage of monomers used for copolymerization, the mole percentage of AA is 33%

2 Preparation of composite p(MMA-*co*-AAc)/CdS

Photographs of the copolymer and copolymer-CdS QD composite films are given below

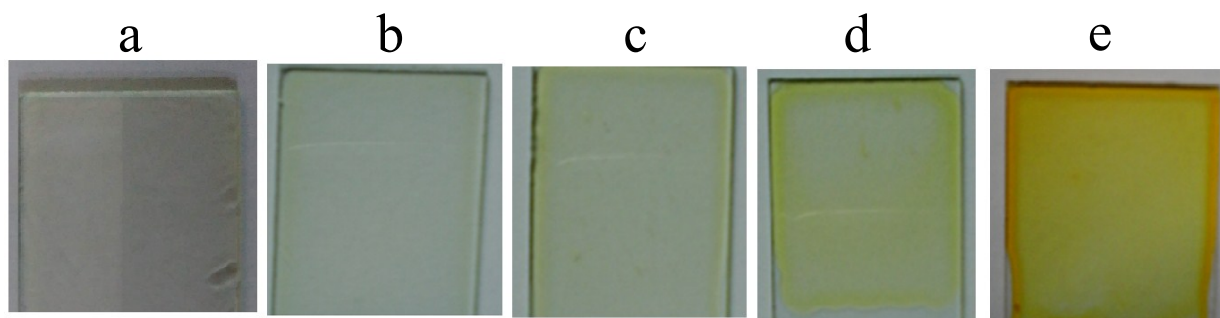


Figure S1. Photographs of a) p(MMA-*co*-AAc)(17) b) p(MMA-*co*-AAc)(17)/CdS, b) p(MMA-*co*-AAc)(23)/CdS, c) p(MMA-*co*-AAc)(25)/CdS, and d) p(MMA-*co*-AAc)(27)/CdS

3 Photoluminescence of p(MMA-co-AAc)/CdS composites

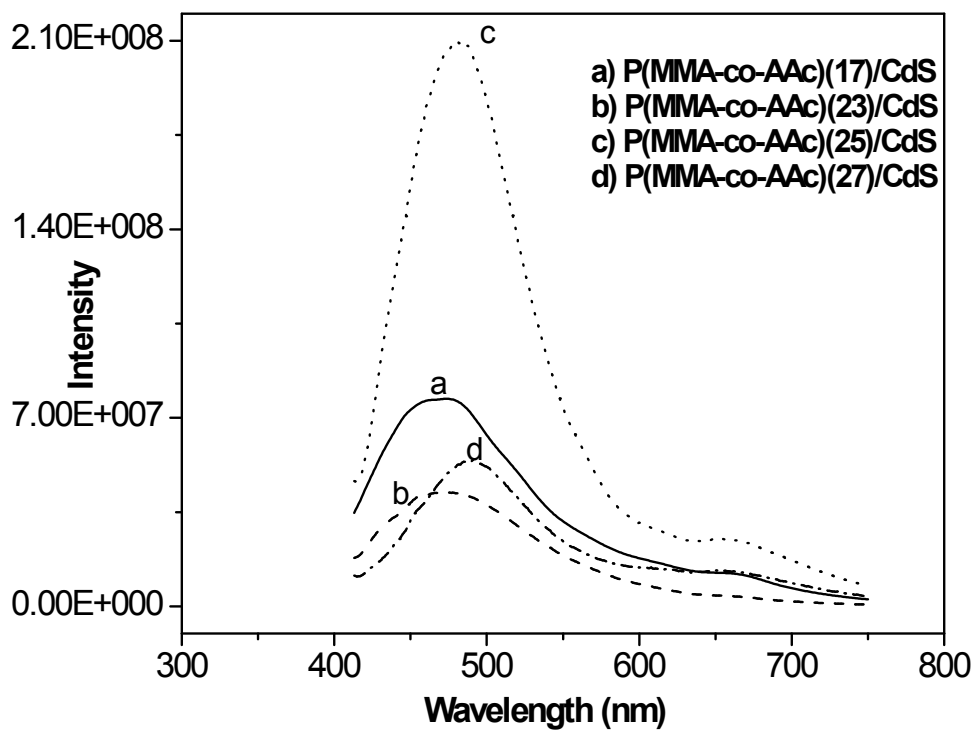


Figure S2. PL of (a) p(MMA-co-AAc)(17)/CdS, (b) p(MMA-co-AAc)(23)/CdS (c) p(MMA-co-AAc)(25)/CdS, and (d) p(MMA-co-AAc)(27)/CdS in DMF