Temperature-dependent photoluminescence and absoprtion of CdSe quantum dots embedded in PMMA

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Abstract: Photoluminescence and absorption studies of CdSe quantum dots in polymethylmethacrylate (PMMA) were carried out in the temperature range 14 - 310 K. We found an anomalously discontinuous variation of the photoluminescence intensity and the peak position around 50 K. Two different kinds of states, whose populations are temperature-dependent, are proposed as the origins for the emissions at lower and higher temperatures. The absorption exhibited a temperature-dependent behavior similar to that of the photoluminescence.
Author Keywords: CdSe; QD; Temperature-dependent PL

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