


Time-resolved photoluminescence characterisation of thin PTCDA films on Si(100)

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Abstract

3,4,9,10-Perylenetetracarboxylic dianhydride (PTCDA) thin films on Si(100) substrate are investigated by time-resolved photoluminescence (PL). A sub-band structure together with a bi-exponential decay of the PL spectra have been observed which are attributed to excimer and monomer recombination processes. A comparison with single PTCDA crystals shows that the excimer transition is related to the crystallinity of the PTCDA films. The dependence of the photoluminescence intensity and decay times on the film thickness and on the substrate temperature give further information about the crystallinity of PTCDA films.

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