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Selective excitation of excitonic transitions in PTCDA crystals and thin films V.R. GANGILENKA, A. DESILVA, LYUBOV V. TITOVA, L.M. SMITH, H.P. WAGNER, Department of Physics, University of Cincinnati, Cincinnati, Ohio 45221-0011 U.S.A, R. SCHOLZ, Walter Schottky Institute, Technical University of Munich, 80333 Munchen, Germany — We study various exciton transitions in PTCDA crystals and in thin films at low temperatures ($\sim$5 K) by photoluminescence excitation spectroscopy (PLE) using DCM and RG6 dyes. The investigated PTCDA crystals are grown by sublimation and thin films are deposited on Si substrate by organic molecular beam deposition (OMBD) at high vacuum. The PLE excitation energy ranging from 1.878 to 2.172 eV enables the selective excitation of Frenkel excitons and of charge transfer transitions between PTCDA molecules in the same unit cell (CT1) as well as between stacked molecules along the growth direction (CT2). The observed excitation energy dependence of the emission bands supports the assignment of the different recombination channels obtained from time resolved PL measurements [1]. [1] A. Yu. Kobitski, R. Scholz, I Vragovic, H. P. Wagner, and D. R. T. Zahn, Phys. Rev. B **66**, 153204 (2002).

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