

## Structural and morphological properties of *N,N'*-dimethyl-3,4,9,10-perylenetetracarboxylic diimide films on passivated GaAs(1 0 0) substrates

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### Abstract

Molecules of *N,N'*-dimethylperylene 3,4,9,10-dicarboximide (DiMe-PTCDI) were deposited by organic molecular beam deposition onto passivated GaAs(1 0 0) substrates in ultra high vacuum. Raman spectroscopy was employed to investigate in situ the influence of the substrate temperature during film growth on the structural properties and the morphology of organic films. Complementary scanning electron microscopy studies reveal that all the films consist of islands. The crystalline nature of these islands is proven by the observation of librionic phonon-like modes characteristic of the molecular crystal in the Raman spectra. The decrease in the phonon bandwidths observed at elevated substrate temperatures is related to an increase in the size of the crystalline domains and improved crystallinity.

**Keywords:** A1. GaAs substrates; A1. Raman spectroscopy characterization; A3. Organic molecular beam deposition; B1. Organic molecules

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