

# Diindeno [1, 2-b: 2', 1'-n] perylene: a closed shell related Chichibabin's hydrocarbon, the synthesis, molecular packing, electronic and charge transport properties

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## Description

Diindeno[1,2-b:2',1'-n]perylene, a new derivative of the indenoacene family was synthesized, and its electronic, electrochemical, and electrical properties were investigated. This material has a closed shell electronic configuration which corresponds to a quinoidal structure with a low band gap of 1.35 eV. Molecular packing in the single crystal was studied by single-crystal X-ray structural analysis, and this information was subsequently used in the determination of the charge transfer integrals via density functional theory methods. The charge-carrier transport properties of the diindeno[1,2-b:2',1'-n]perylene-5,12-dione and diindeno[1,2-b:2',1'-n]perylene derivatives were investigated through the fabrication and characterization of field-effect transistors via both vacuum-deposited and solution-processed films, respectively. Diindeno[1,2-b:2',1'-n]perylene exhibited a field-effect behaviour with a hole ...