

STRUCTURE AND ELECTROLUMINESCENT
PROPERTIES OF THIN TETRACENE
LAYERS ON GOLD ISLAND FILMS

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S u m m a r y

The molecular structure, morphology, and electrical conductivity of thin tetracene layers obtained by the thermal vacuum deposition have been studied with the help of FTIR spectroscopy and STM/STS techniques as well. It has been shown that this preparation method does not change the tetracene molecular structure. The tetracene thin layers on the atomically smooth pyrolytic graphite surface demonstrate an amorphous structure. The local current-voltage characteristics (CVC) measured for tetracene films ~ 10 monolayers thick show a well-defined asymmetry relative to a tunnel voltage.

A study of the electrical conductivity and the electroluminescence (EL) of a planar composite consisting of gold island films and tetracene layers has revealed that EL from submicron luminescent centers is observed on a superlinear section of conduction current I - V curves. The EL intensity grows with increasing voltage and becomes maximal at the CVC saturation. It is found that the EL from the nanocomposite has a 560-nm wavelength emission maximum.