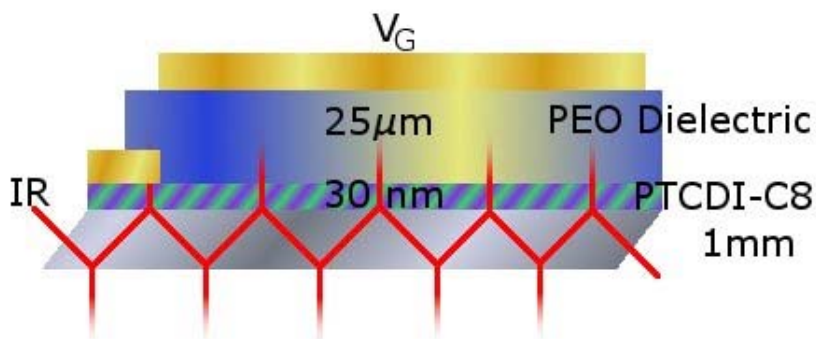


# Spectroscopy of Molecular Electronic Devices

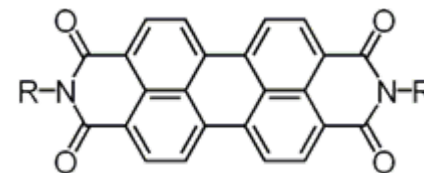
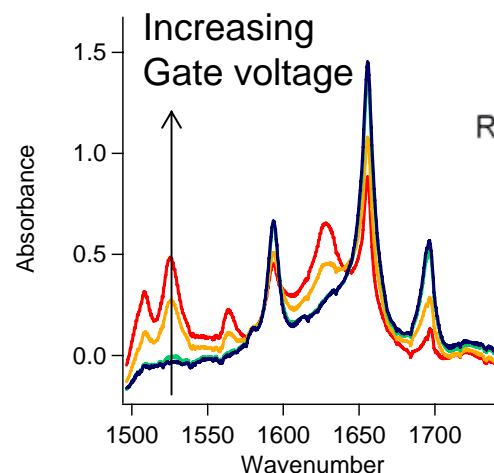
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- IR Spectroscopy of buried interfaces in organic thin film transistors (OTFTs)
  - ◆ Identifying and quantifying charge carrying species
  - ◆ Identifying charge carrier traps
  - ◆ Quantify polaron - bipolaron transitions



- MAJOR OBSERVATIONS

- ◆ Quantifying charge injection density:  $2.9 \times 10^{14} / \text{cm}^2$  at  $V_G = 2 \text{ V}$
- ◆ Identifying two doping mechanisms: electrostatic & electrochemical



Converting neutral PTCDI molecules to anions (molecular polarons)

- Publications

- ◆ J. Am. Chem. Soc. **2007**, 129, *in press*.
- ◆ Phys. Rev. B **2006**, 74, 241401R
- ◆ Langmuir **2006**, 22, 3627.
- ◆ J. Chem. Phys. **2006**, 124, 081104.