

Abstract Submitted  
for the MAR10 Meeting of  
The American Physical Society

**Electrical Conductivity Response of Poly (phenylene vinylene) / Zeolite Composites Exposed to Ethanol vapour** INTIRA YIMLAMAI, ANUVAT SIRIVAT, The Petroleum and Petrochemical College — Conducting polymers such as poly (p-phenylene vinylene) (PPV) can serve as the active material in organic vapor sensor because PPV possesses good optical and electrical properties. PPV can be synthesized by a relative simple technique and doped with sulfuric acid to improve its electrical properties. The composites of 10% (v/v) doped PPV and ZSM-5 zeolites (Si/Al = 23, 50, 80, 280) were prepared by dry mixing to be used as an ethanol vapor sensor. The four-point probe technique was used to evaluate the effects of doping molar ratio and Si/Al ratio when the sensing materials were exposed to ethanol vapor. When exposed to ethanol vapor, the electrical conductivity response of the doped PPV and ZSM-5 zeolites increased with increasing mole of sulfuric acid but decreased as the ratio Si/Al increased. Although the doped PPV showed positive response when exposed to ethanol vapor but the composites of 10% (v/v) PPV/ ZSM-5 zeolites showed negative electrical conductivity responses, similar to those of the undoped PPV and ZSM-5 zeolites. The difference in the interaction between ethanol molecules and the sensing materials on the electrical conductivity responses were investigated by the FT-IR measurements.

Anuvat Sirivat  
The Petroleum and Petrochemical College, Chulalongkorn University

Date submitted: 09 Nov 2009

Electronic form version 1.4