CHAPTER V
CONCLUSIONS

Undoped polypyrrole and polypyrole doped with β naphthalene sulfonic acid show no response to 10 % CH_4, 10 % CO_2 and 1000 ppm CO. However, they respond positively to 1000 ppm SO_2 due to the electrophilic gas interaction. As the polymers are mixed with the molecular sieve 13X and exposed to 10% CH_4, Ppy_ud/13X and Ppy_1:6/13X composites do not respond at all to methane. As 13X content increases, the electrical conductivity values in air and N_2 of the composites decrease. Ppy_ud/13X and Ppy_1:6/13X composites at 10% v/v of 13X content have the highest sensitivity to SO_2; the sensitivity is reduced as 13X content increases. The effect of cation type, by changing from $Na^+$to Li^+, K^+, and Cs^+, and the effect of cation concentration in zeolite 13X are also studied. The composites of unmodified 13X in which Na^+ is fully present give the greatest sensitivity to SO_2. The sensitivity of Ppy/13X composite to SO_2 is reduced by exchanging cation in 13X from Na^+ to other alkali cations in this decreasing order: Cs^+, K^+, and Li^+.