

## C125376 : MAJOR PHYSICS

KEY WORD : THERMOELECTRIC POWER / POLYPYRROLE / LOW TEMPERATURE MEASUREMENT  
WORAWOOTE TOTTHARONG, FLT.LT. : THERMOELECTRIC POWER MEASUREMENT OF  
CHEMICALLY SYNTHESIZED POLYPYRROLE AT VARIOUS TEMPERATURES. THESIS  
ADVISOR : ASSO.PROF.ANUNTASIN TECHAGUMPUGH, Ph.D. 102 PP.  
ISBN 974-581-825-9

The instruments for a study of the absolute thermoelectric power ( $S_p$ ) of Chemically Synthesized Polypyrrole at various temperatures ( $T$ ) had been developed. The temperatures measured were between 77 K to room temperature. The measurements were performed while the temperatures of the sample were continuously increased. The increase was caused by the evaporation of liquid nitrogen surrounded brass cylinder which enclosed the sample.

It was found that the values of absolute thermoelectric power of these polypyrrole samples were positive through out this temperature range and roughly the same as those of electrochemically synthesized samples. This proved that the electrical transport phenomena of both polypyrroles were the same. The plot between the absolute thermoelectric powers and temperatures seem to exhibit a straight line which passes through the origin, similar to that of the metal. The results also indicate that the charge carriers in conduction process are positive which agree with the proposed chemical reaction in the polymerization process.