

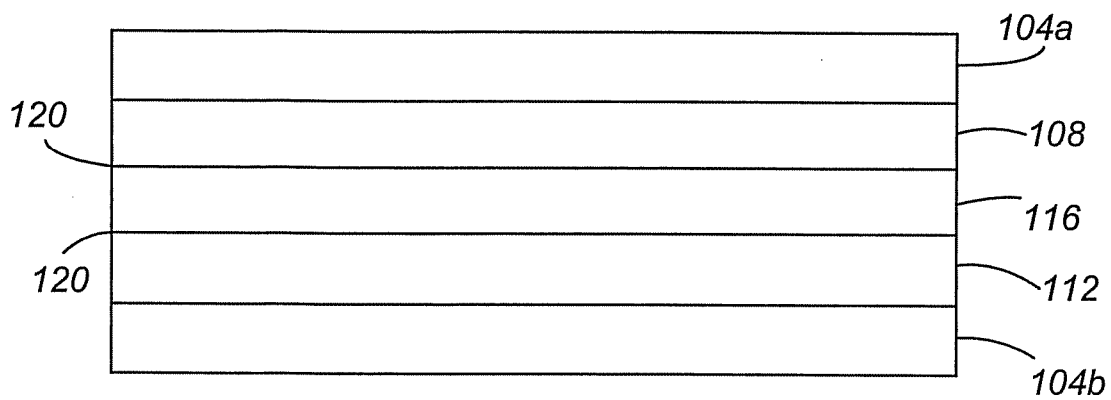


Fig. 1

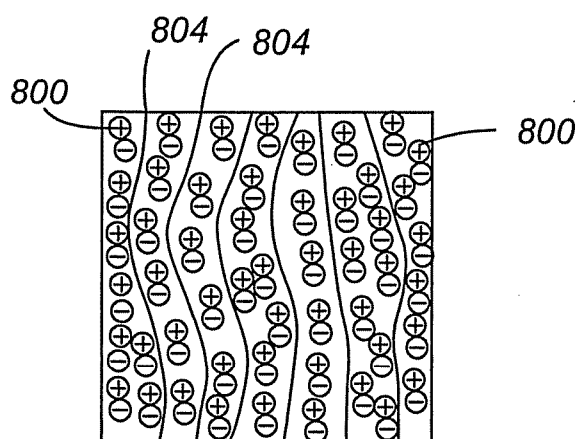


Fig. 8

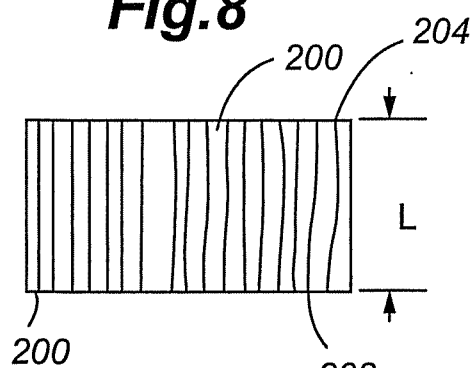


Fig. 2

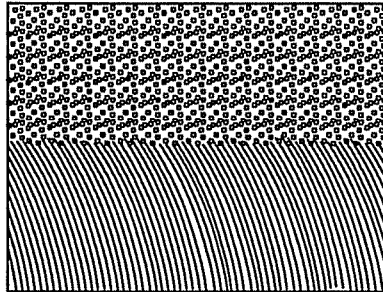


Fig. 3

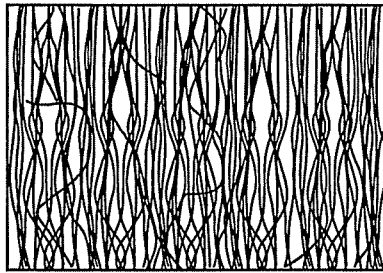
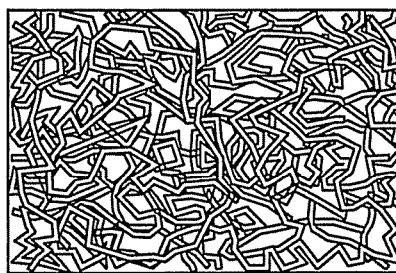


Fig. 4



500

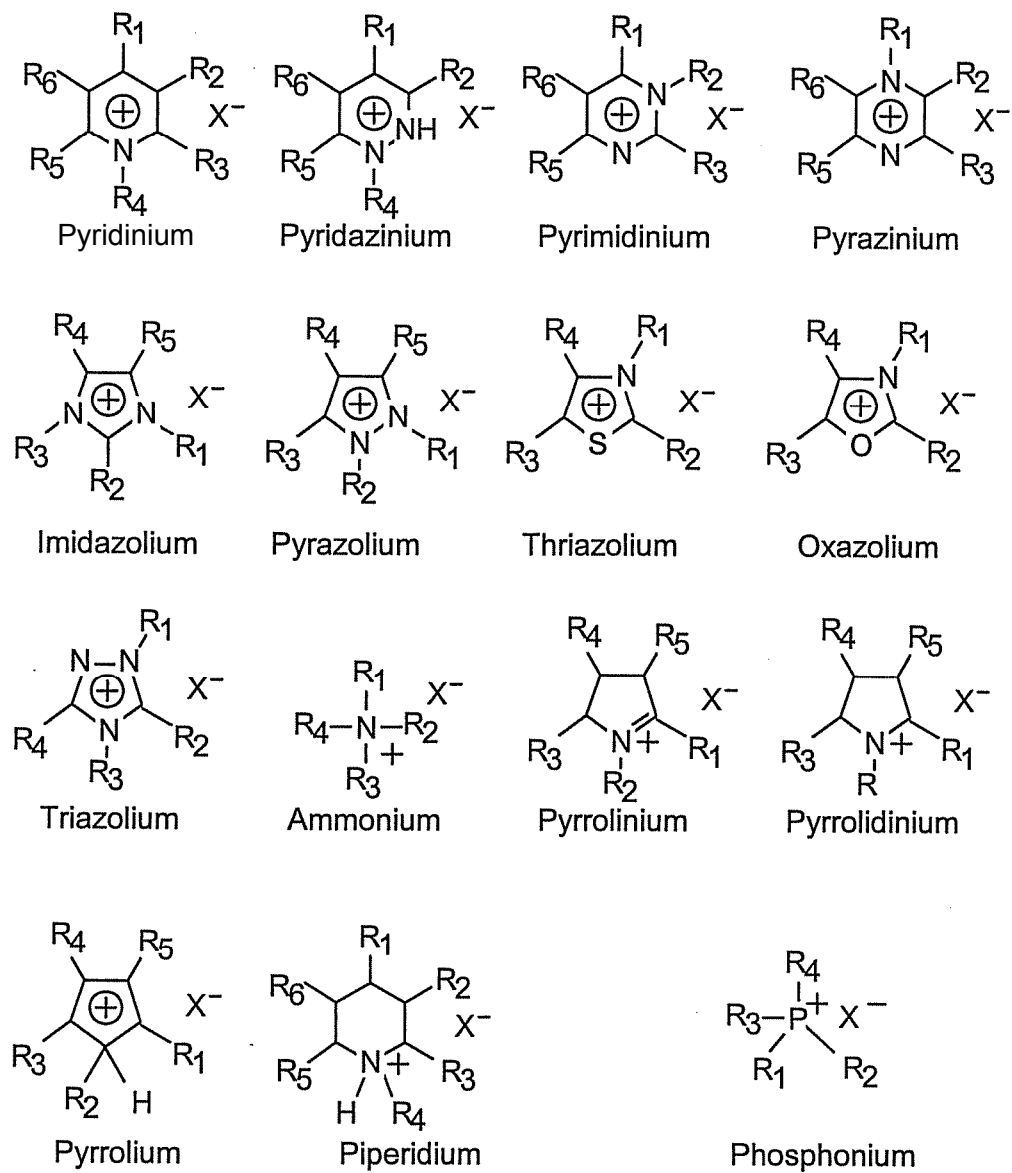
Fig. 5

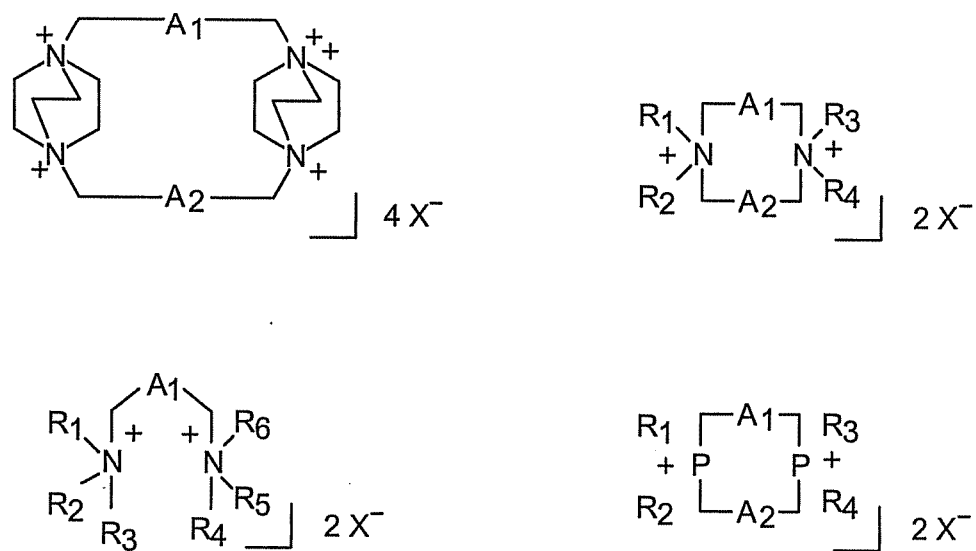


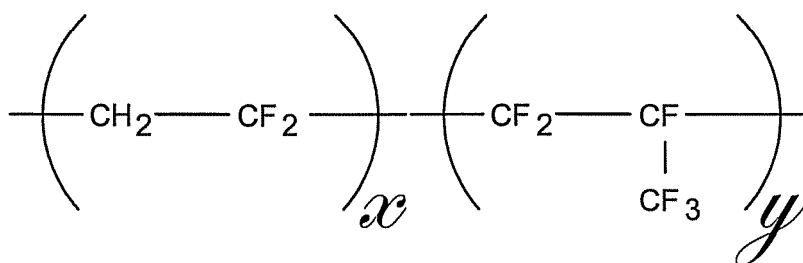
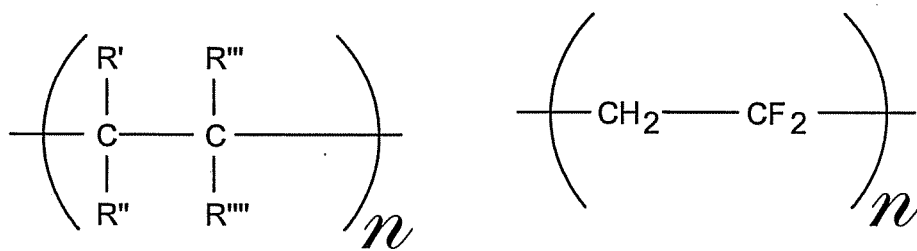
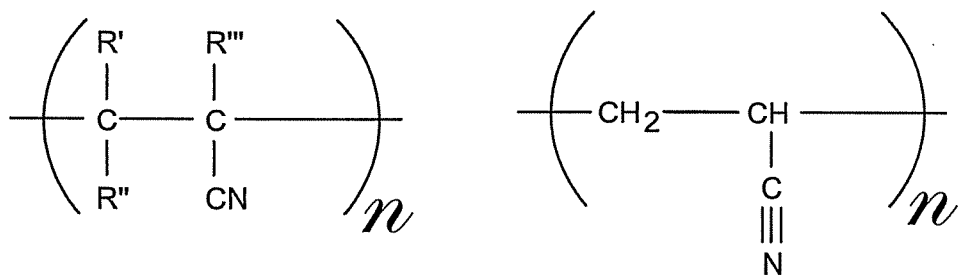
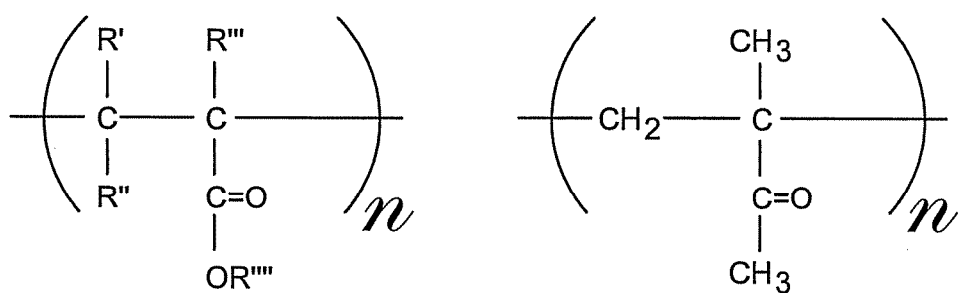
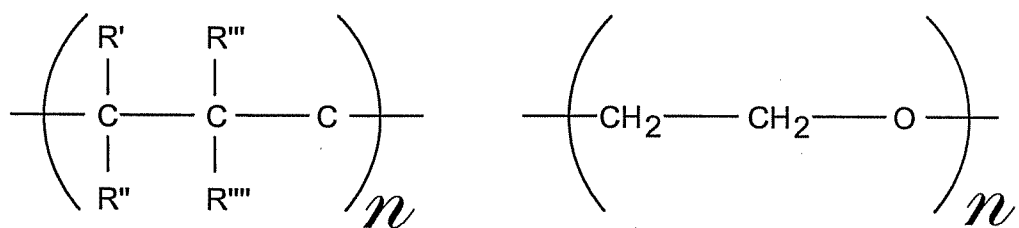
Fig. 6

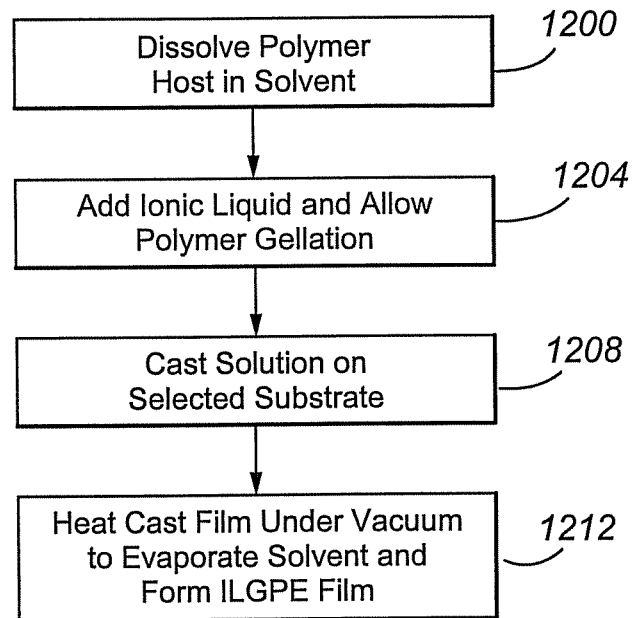
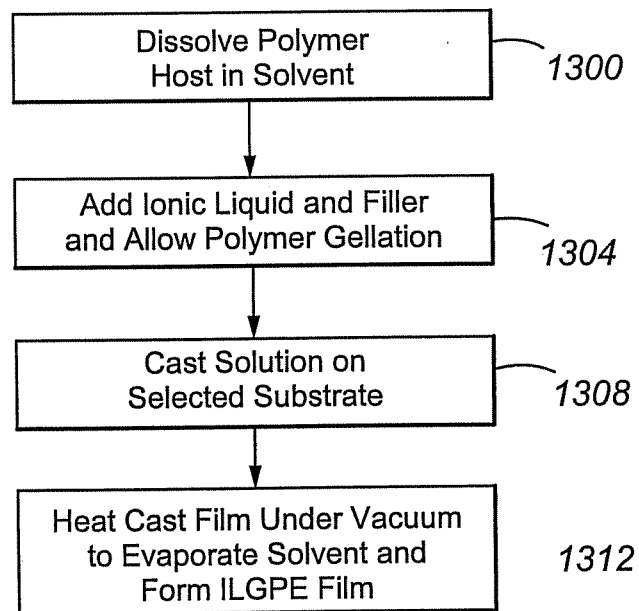


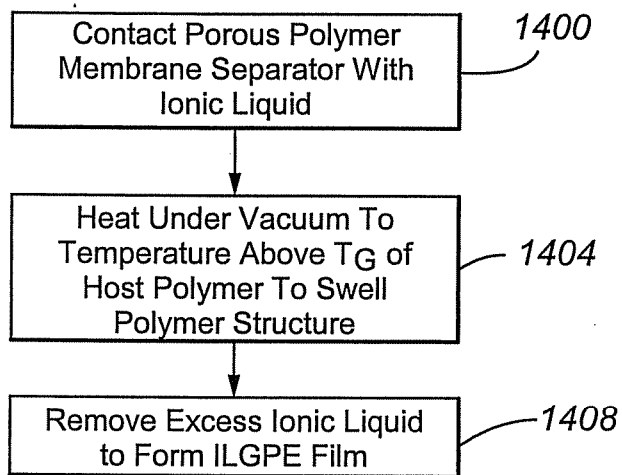
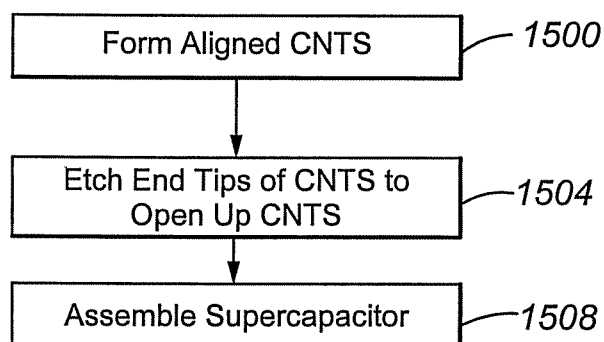
Fig. 7

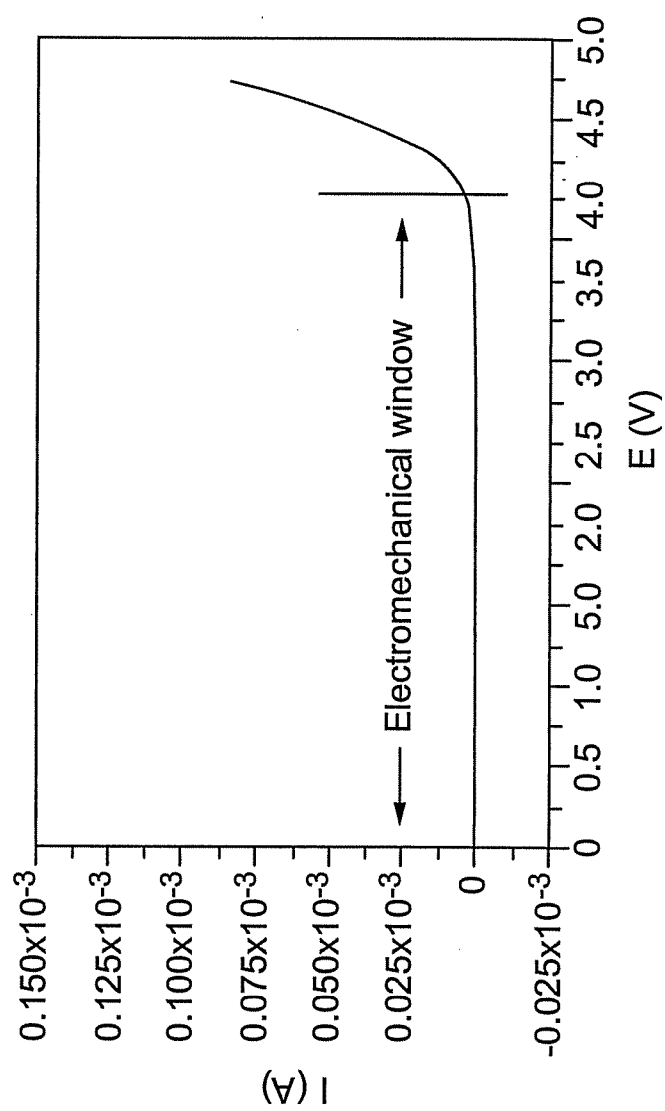
**Fig. 9**

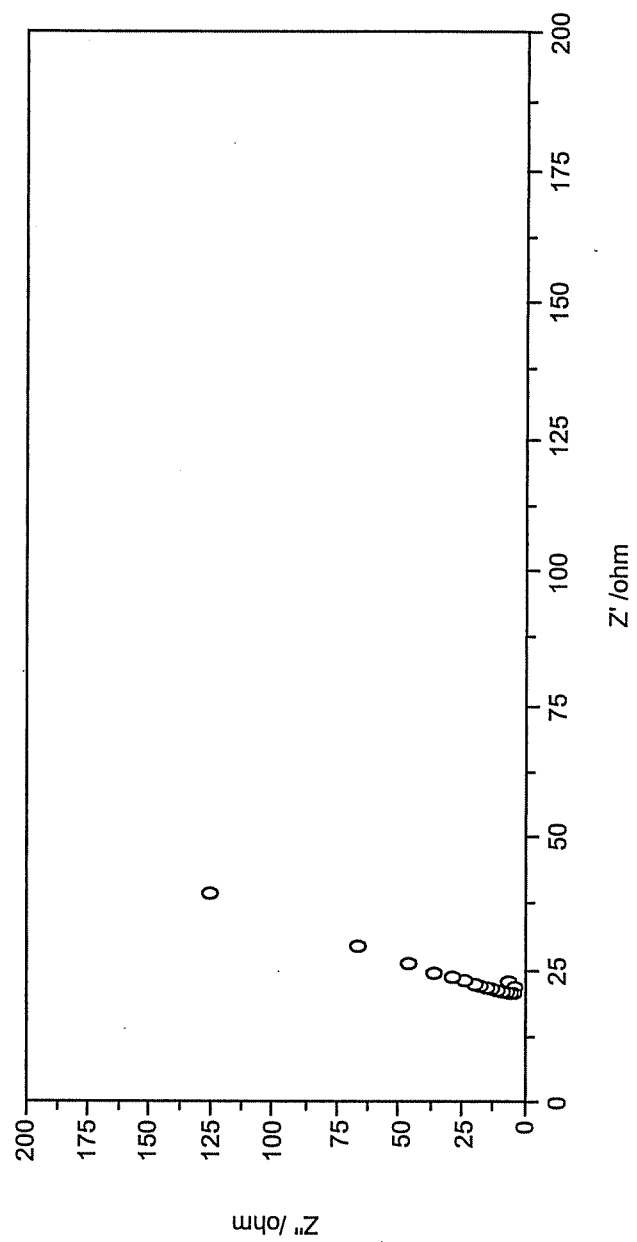
**Fig. 10**

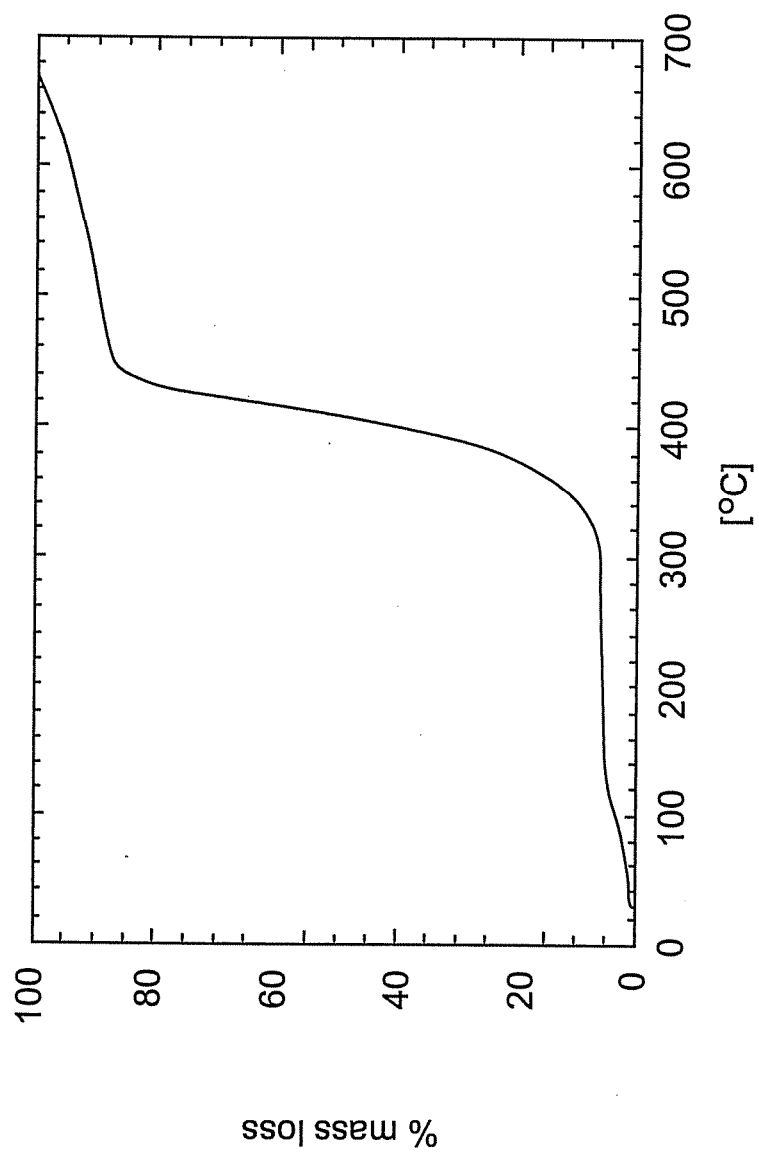
**Fig. 11**

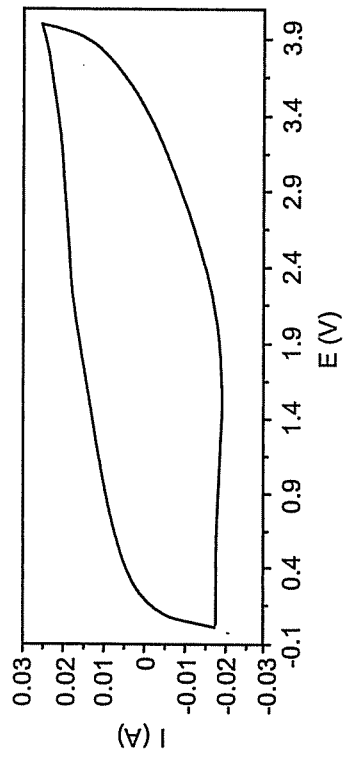
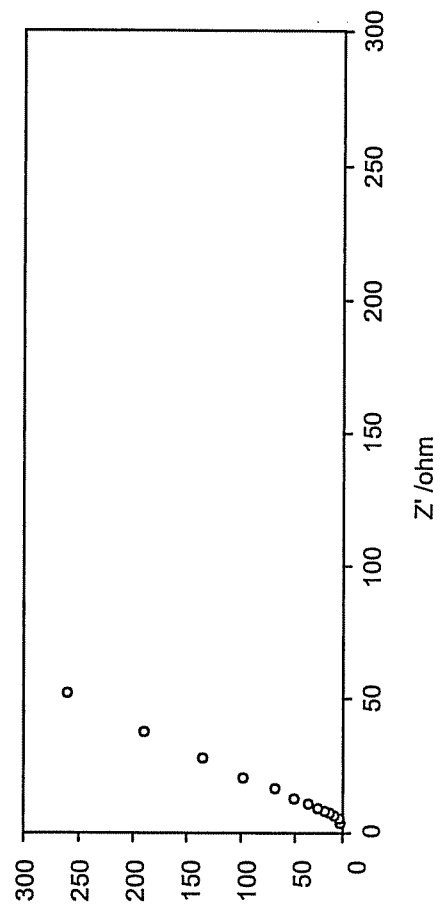
**Fig. 12****Fig. 13**

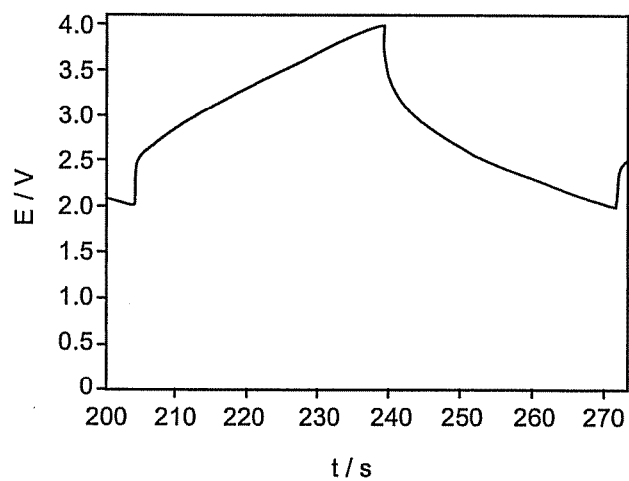
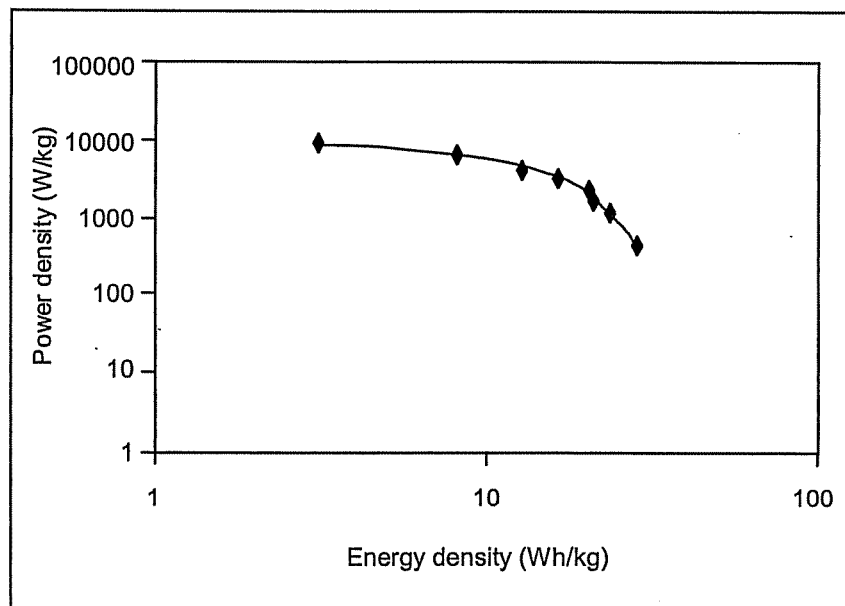
**Fig. 14****Fig. 15**

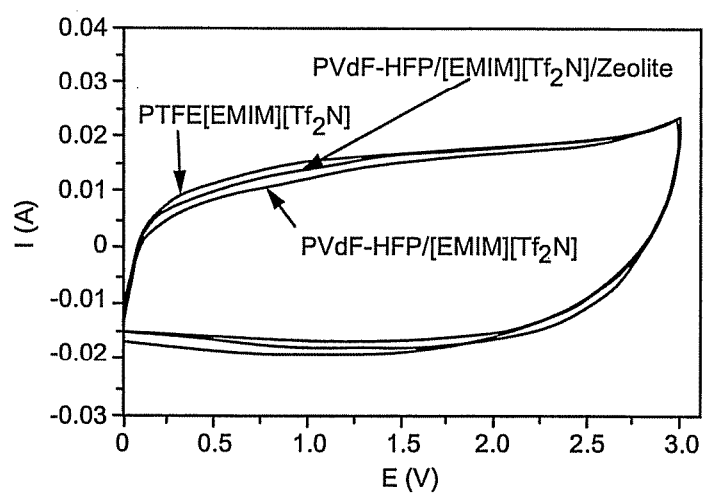
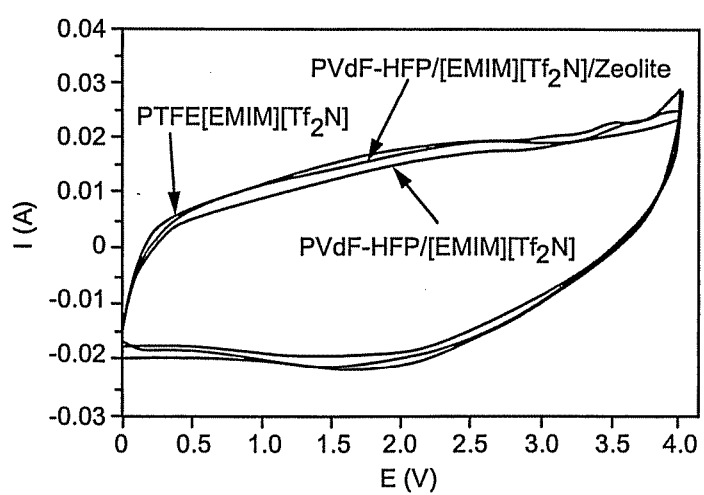
**Fig. 16**

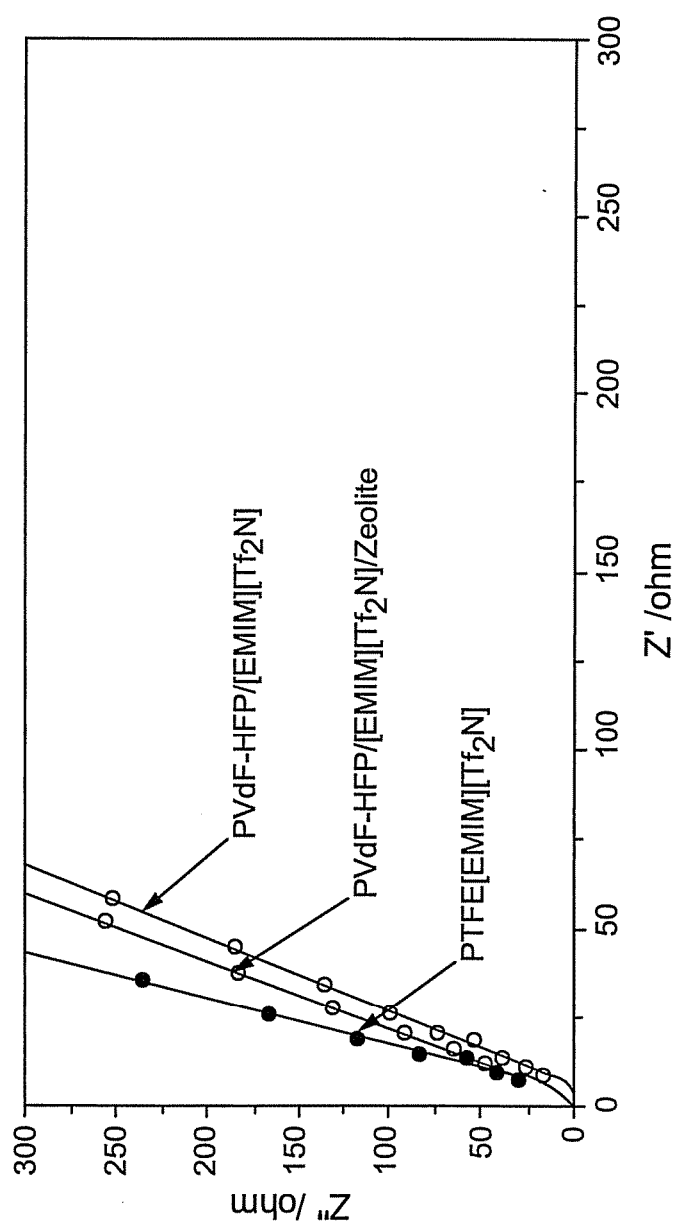
**Fig. 17**

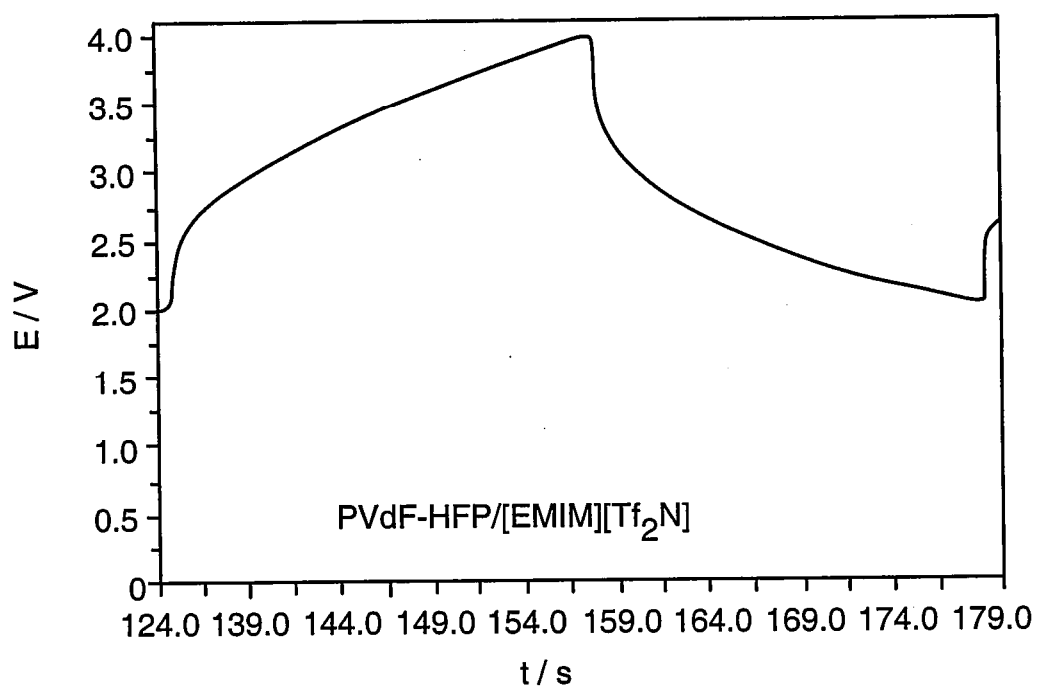
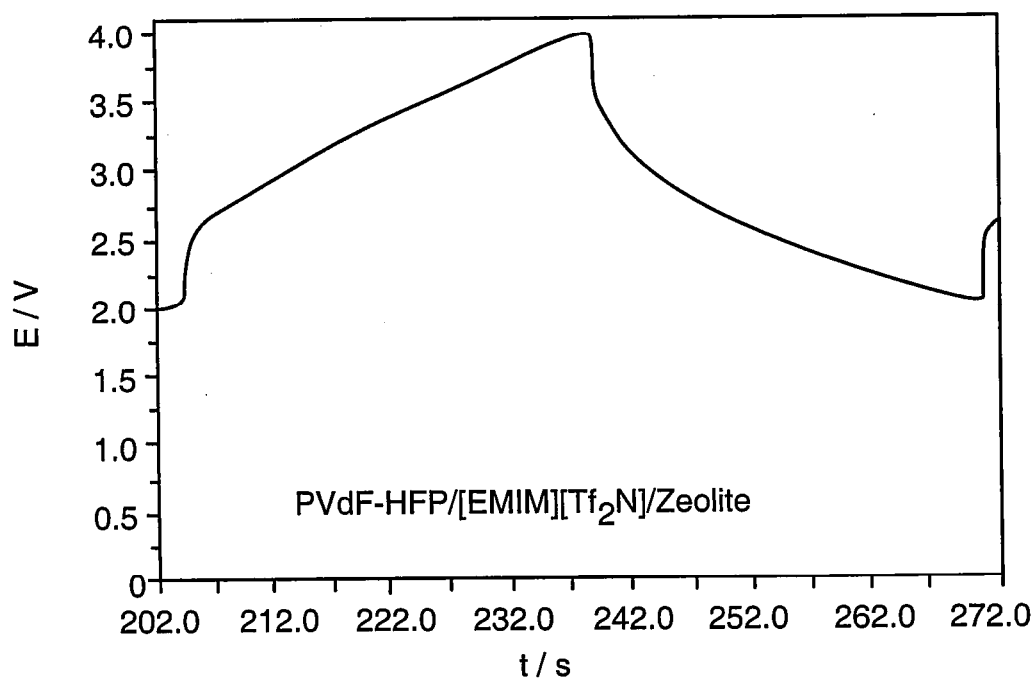
**Fig. 18**

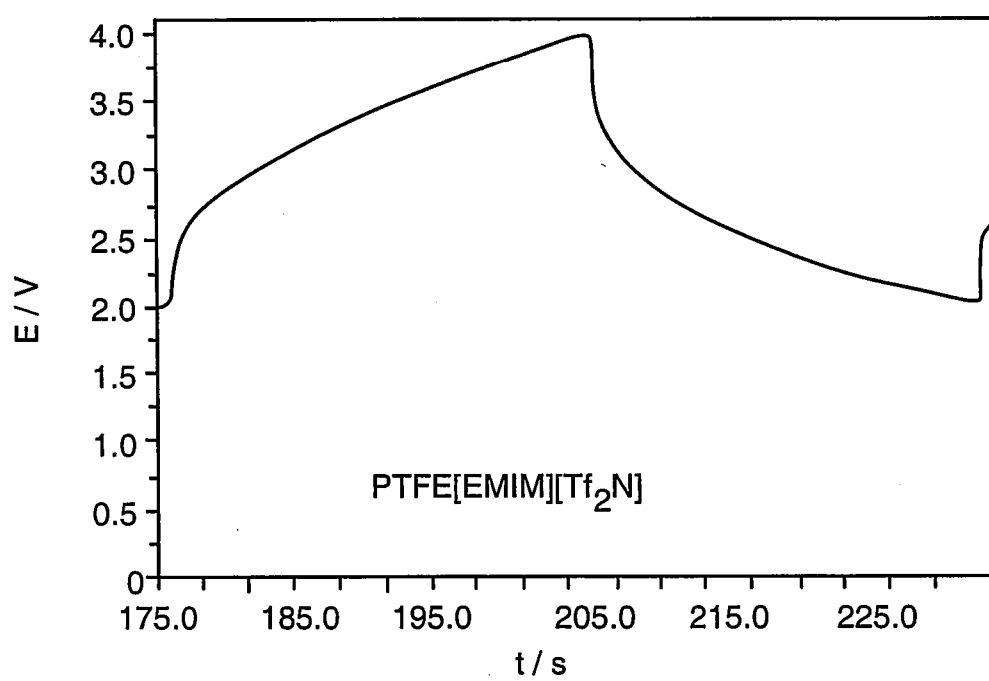
**Fig. 19A****Fig. 19B**

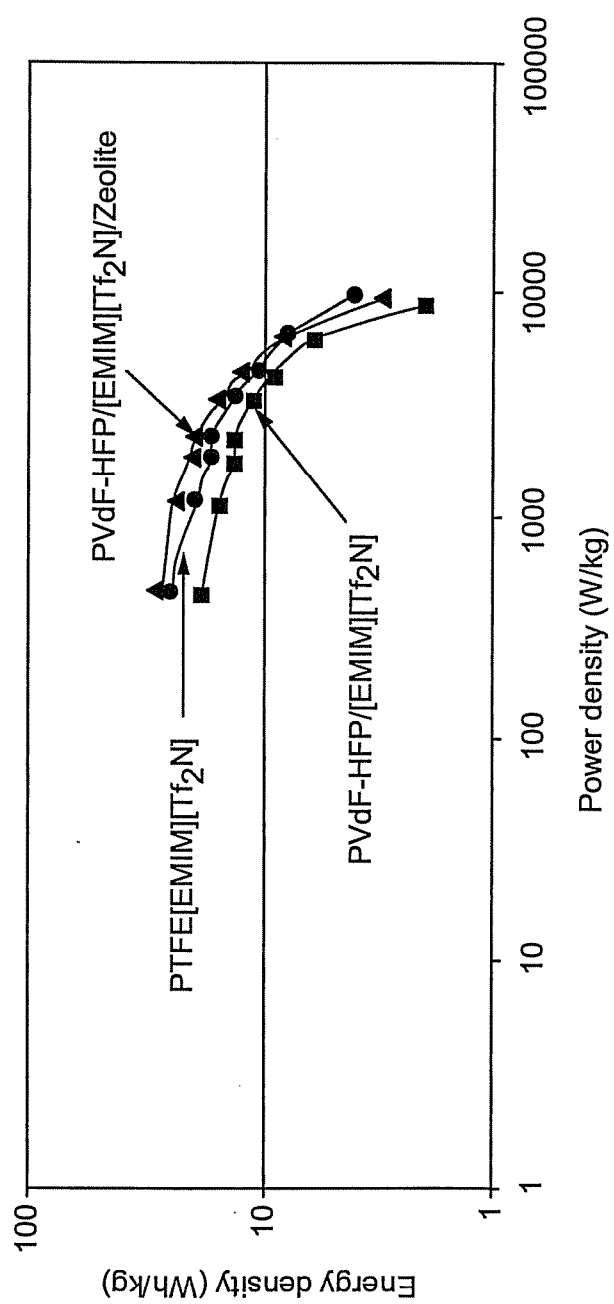
**Fig. 20A****Fig. 20B**

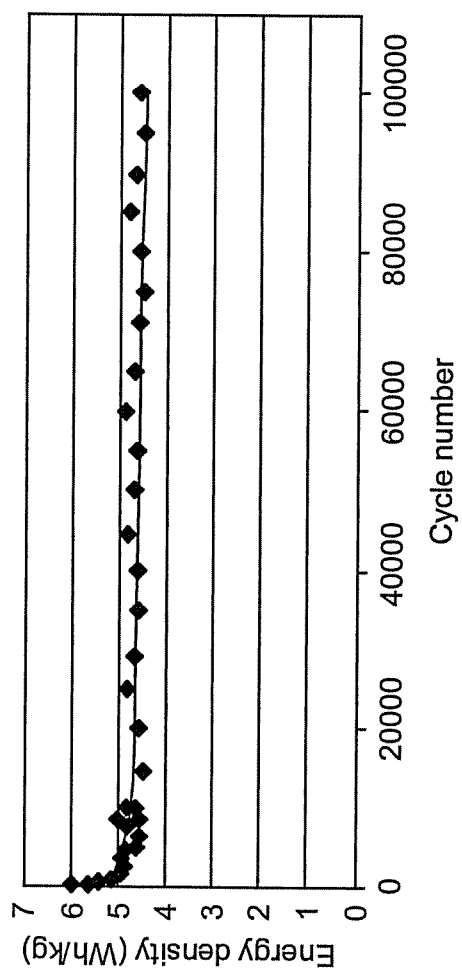
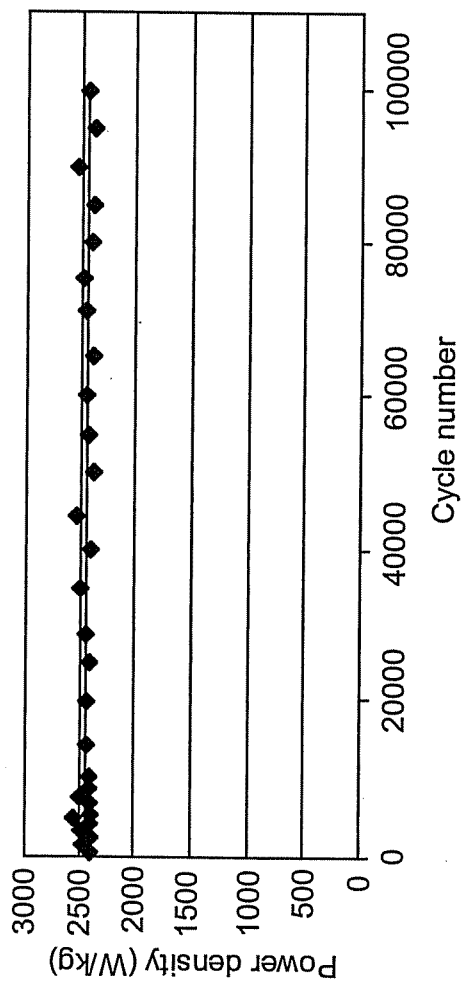
**Fig. 21A****Fig. 21B**

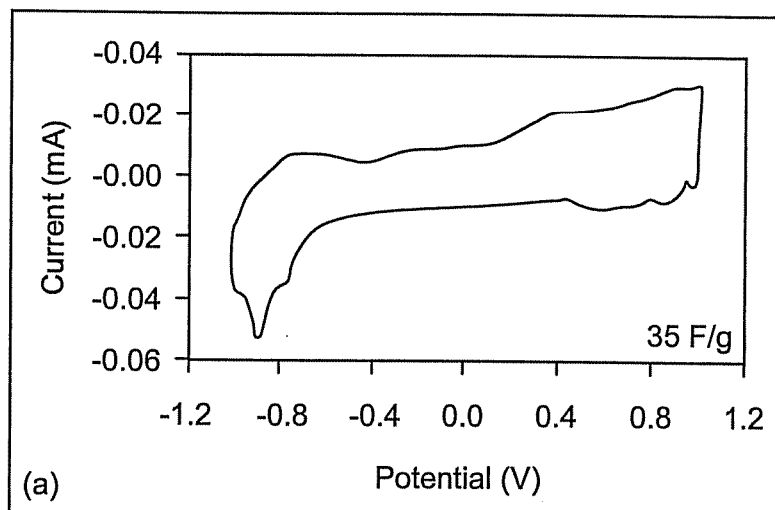
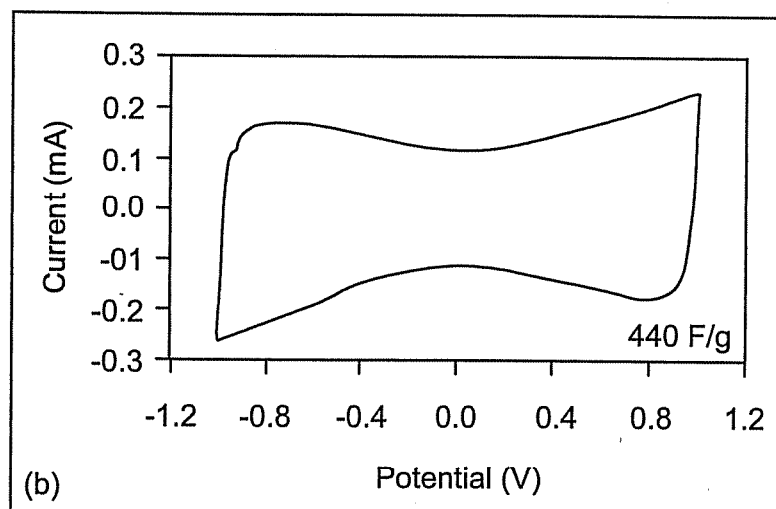
**Fig. 22**

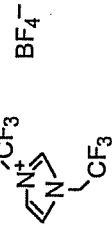
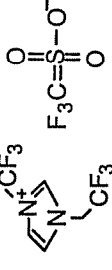
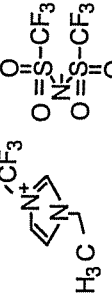
**Fig. 23A****Fig. 23B**

***Fig. 23C***

**Fig. 24**

**Fig. 25A****Fig. 25B**

**Fig. 26A****Fig. 26B**

Ionic liquid	[EMIM][BF ₄]	[EMIM][CF ₃ SO ₃]	[EMIM][Tf ₂ n]
Structure			
Molecular Weight	197.97	260.24	191.31
Melting point (°C)	-50.0	-12.0	-17.0
Decomposition temperature (°C)	310	340	400
Water miscibility	miscible	miscible	immiscible
Viscosity (cp, at 20°C)	151.7	51.7	28.0
Electromechanical window (V)	4.05	4.09	4.28
Ionic conductivity (mS/cm)	7.56	4.54	4.85
Anion size (nm)*	0.45	0.51	0.65
Cation size (nm)*	0.6	0.6	0.6

*ionic diameters, calculated by Hyperchem® software

Fig. 27

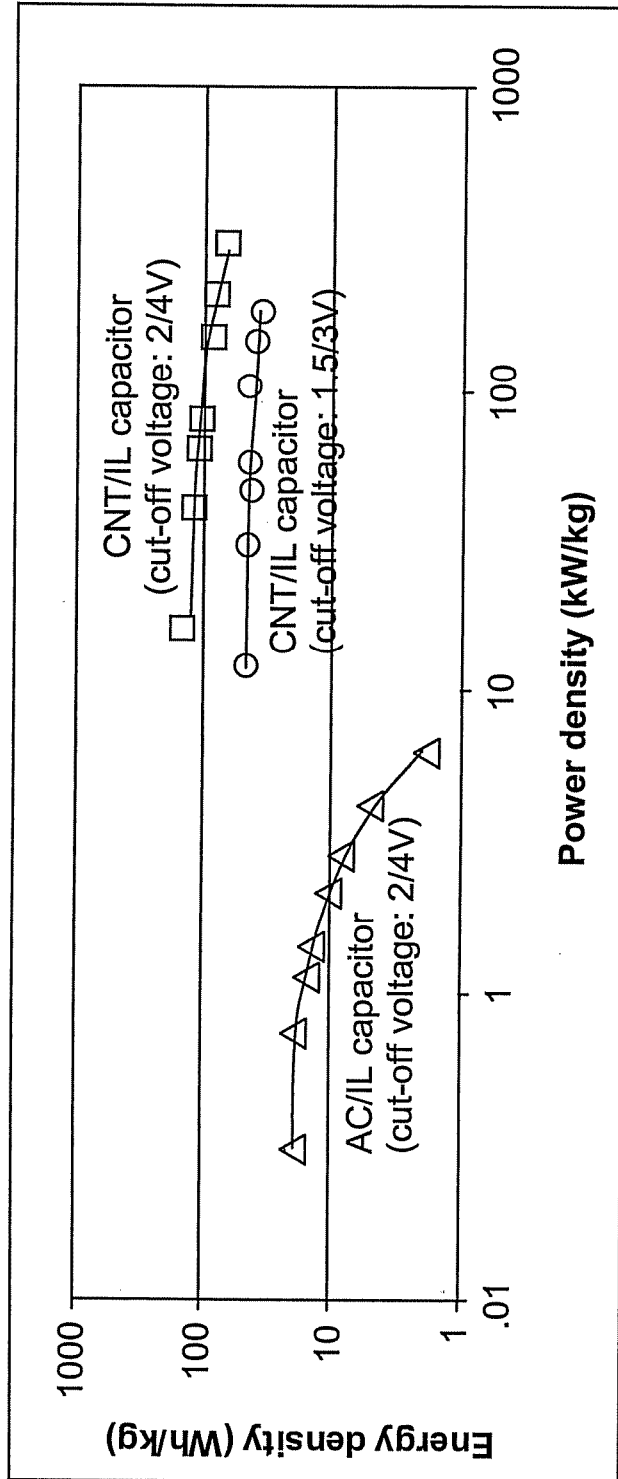
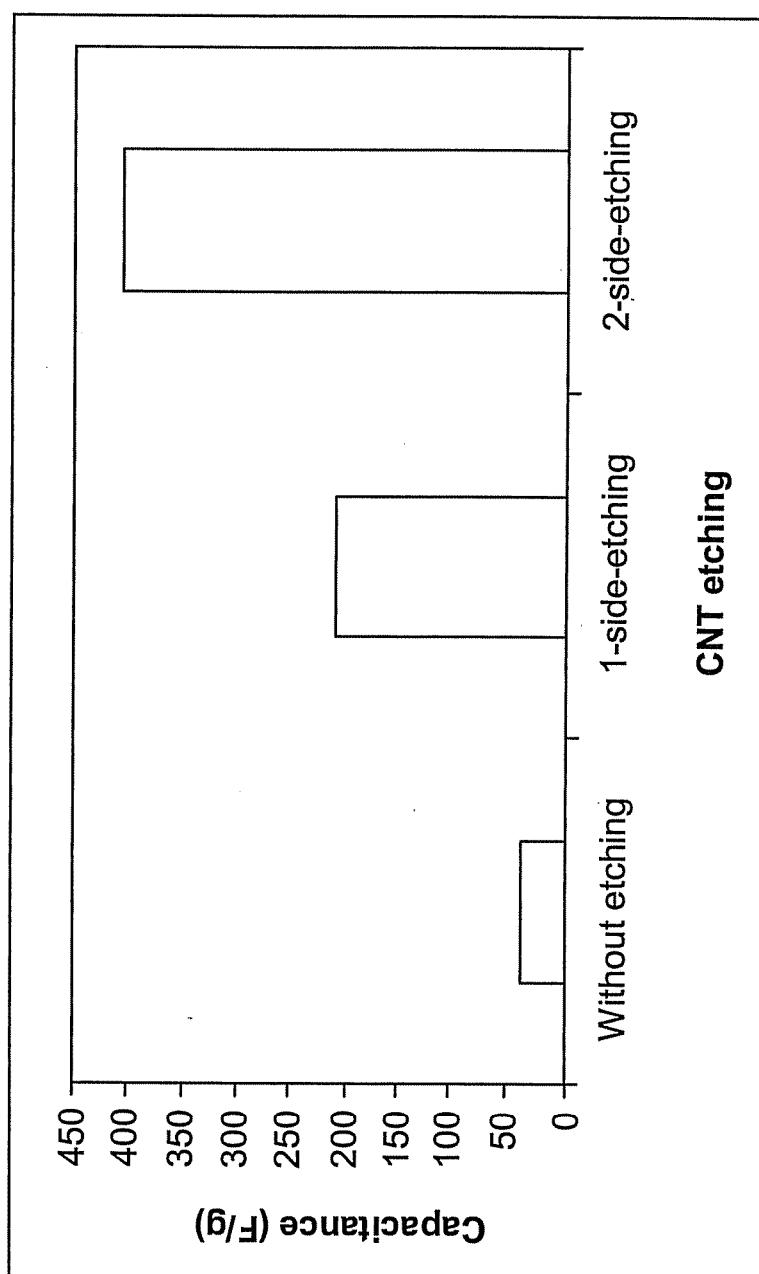
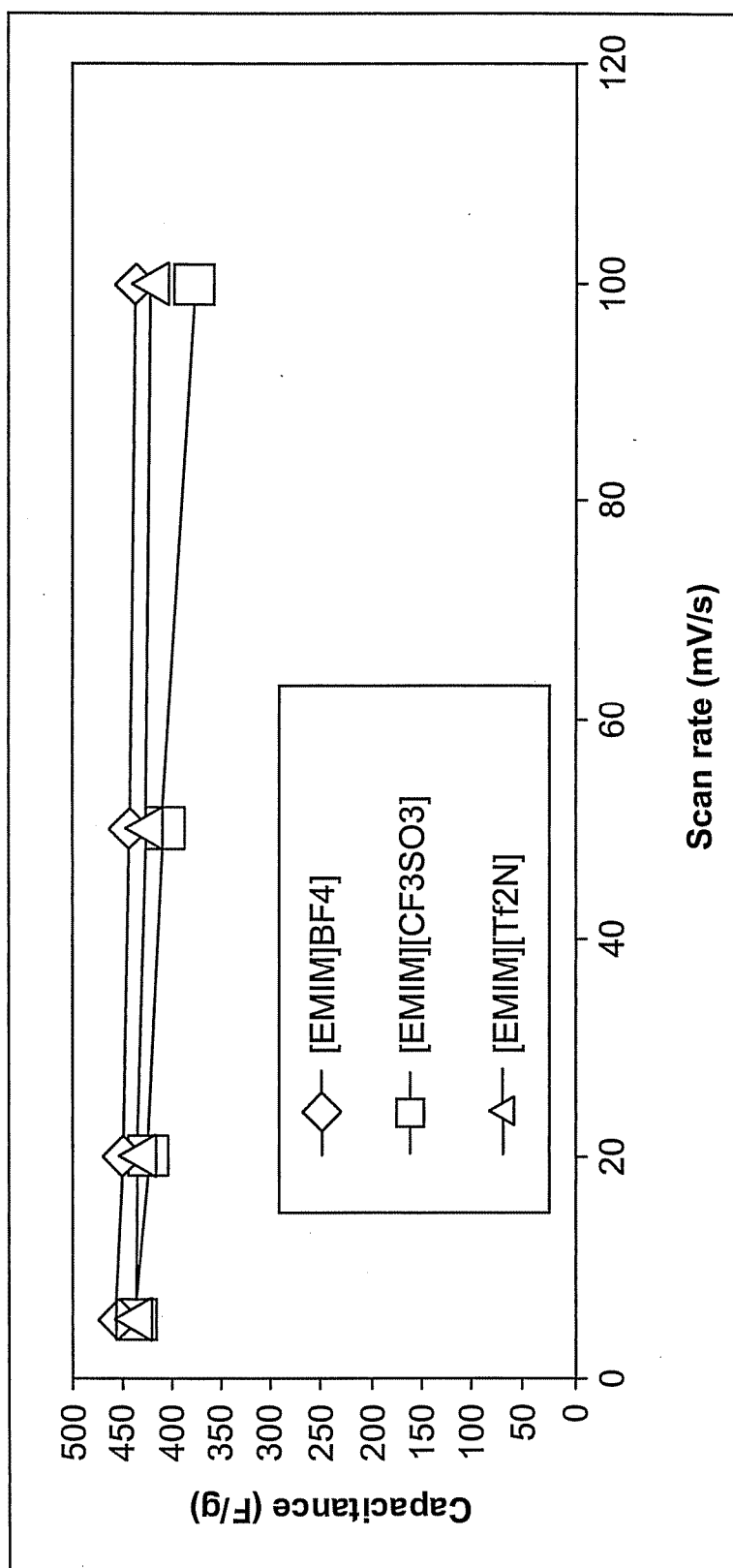
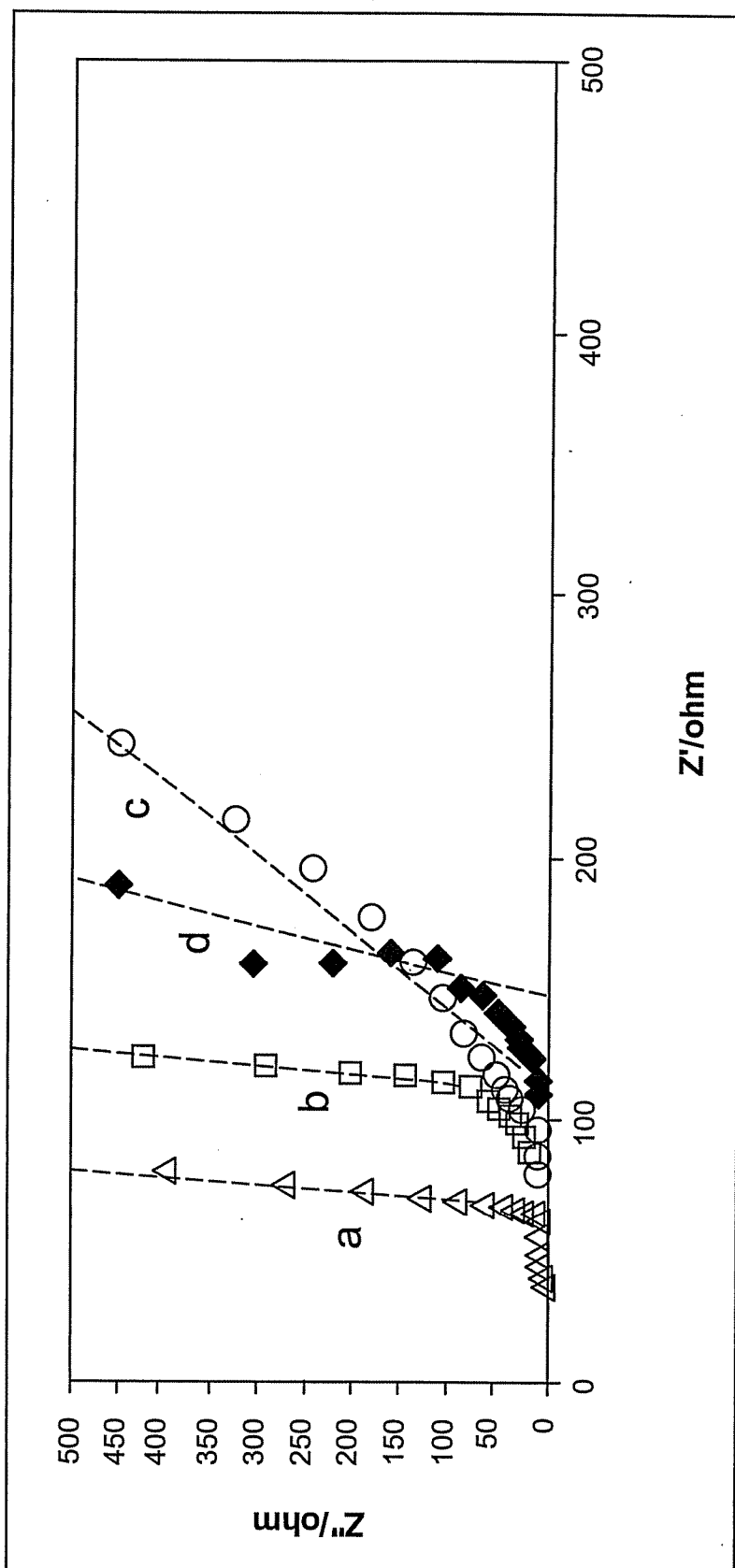
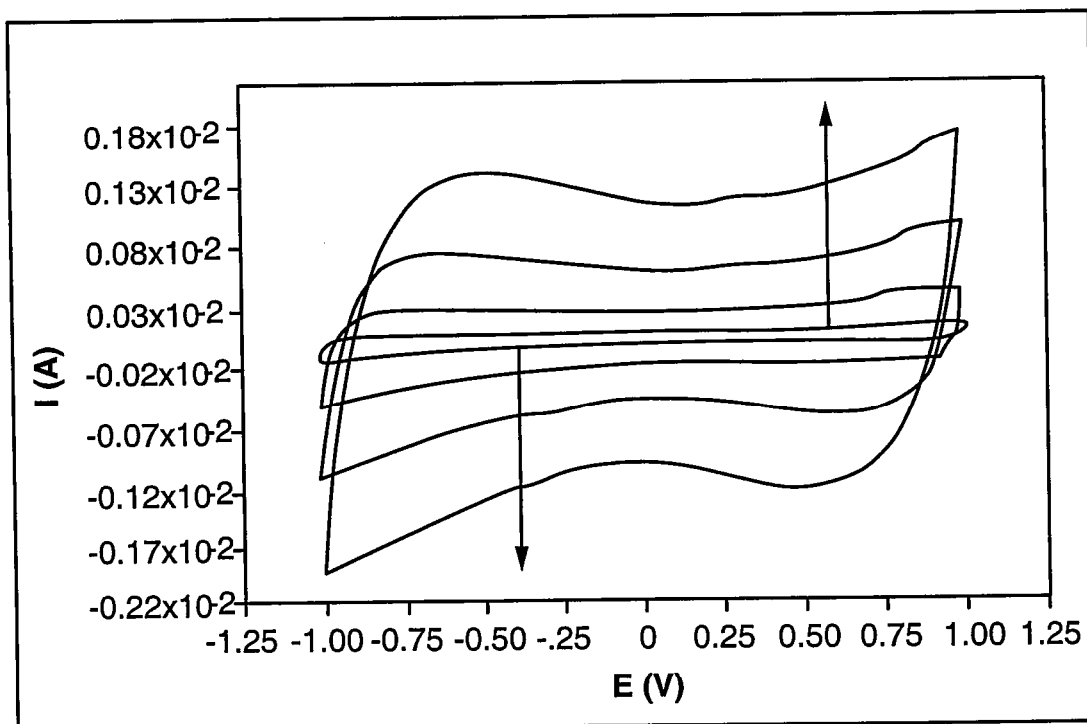
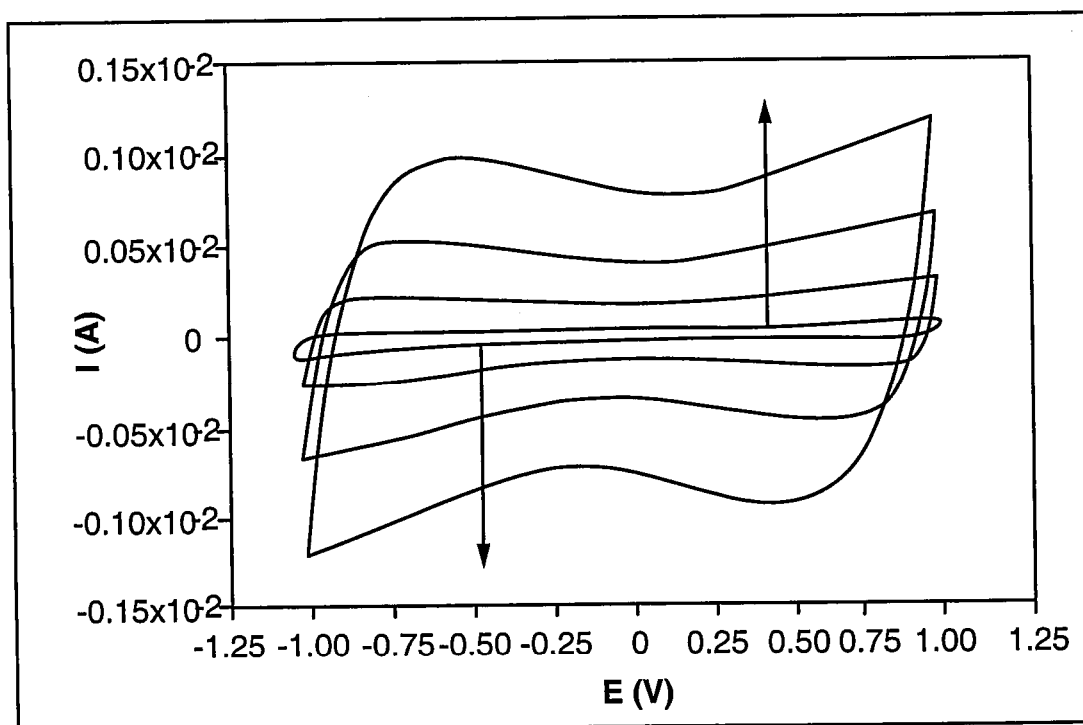


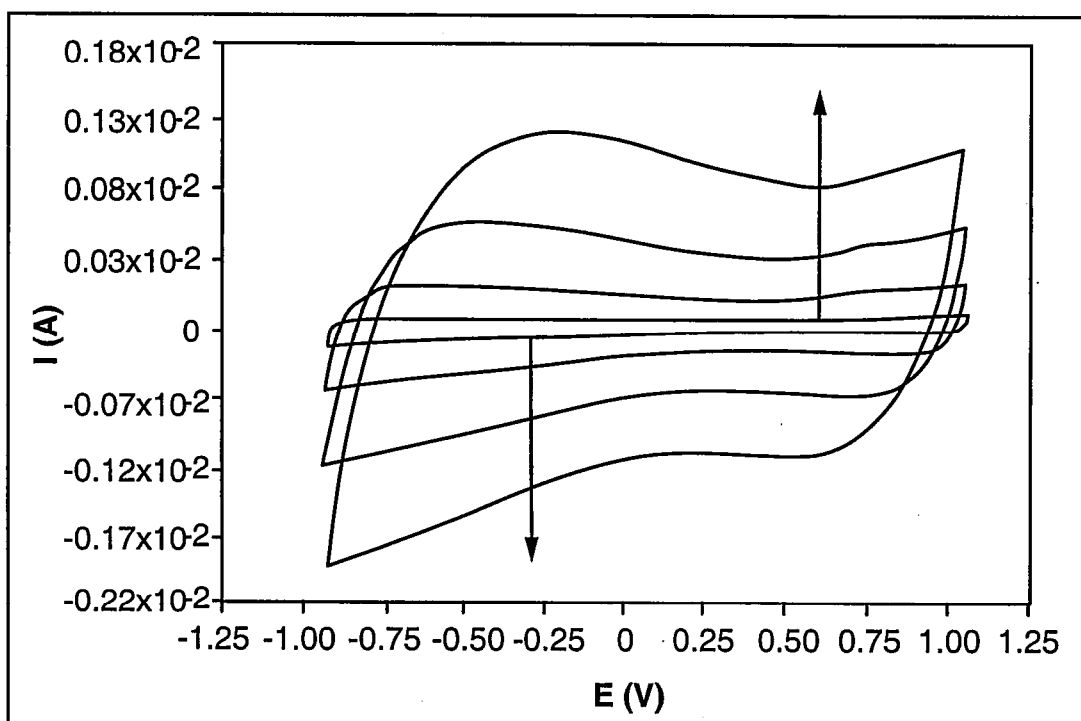
Fig. 28

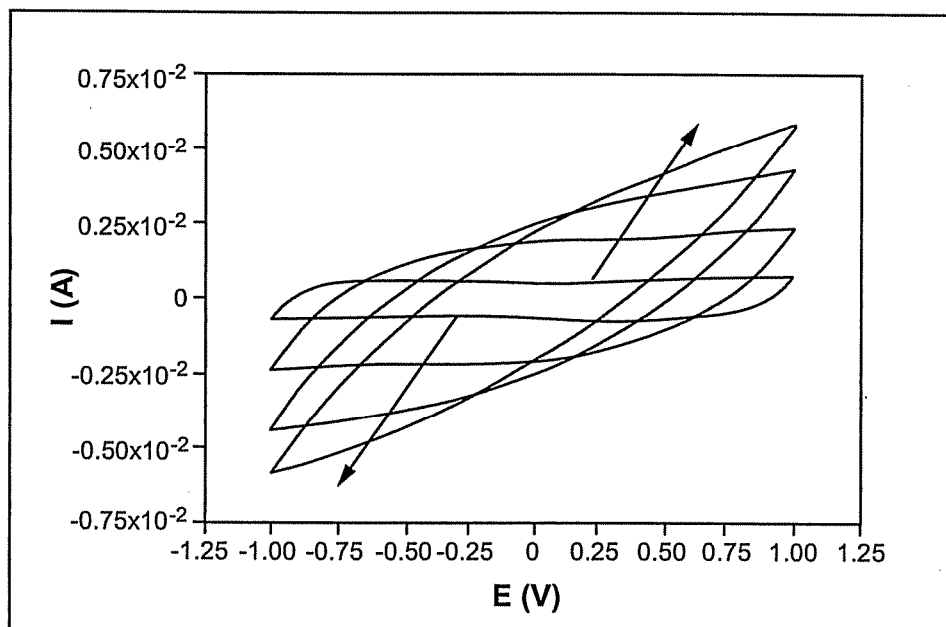
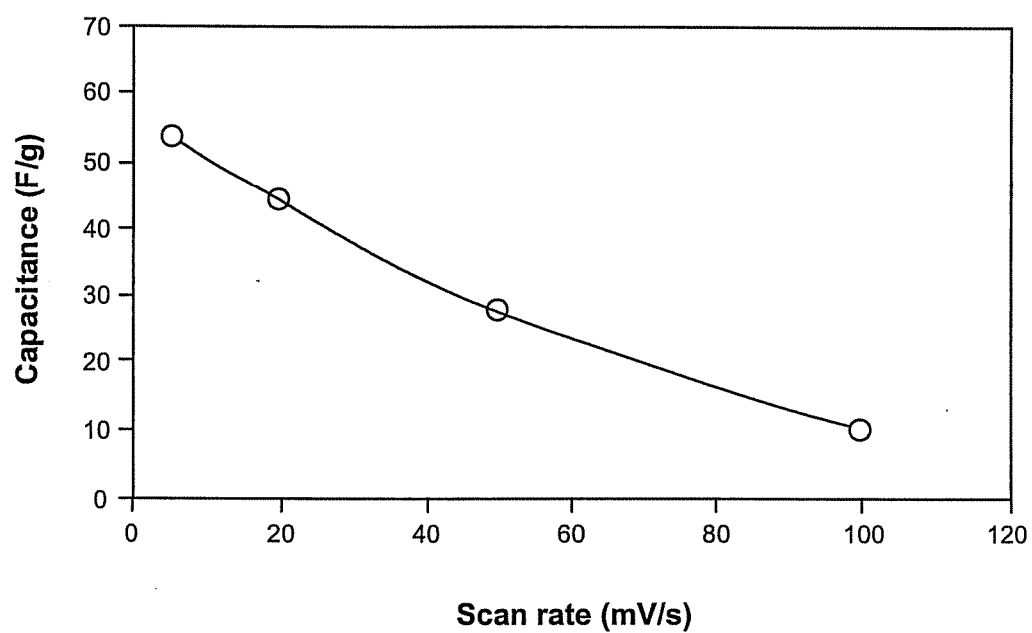
**Fig. 29**

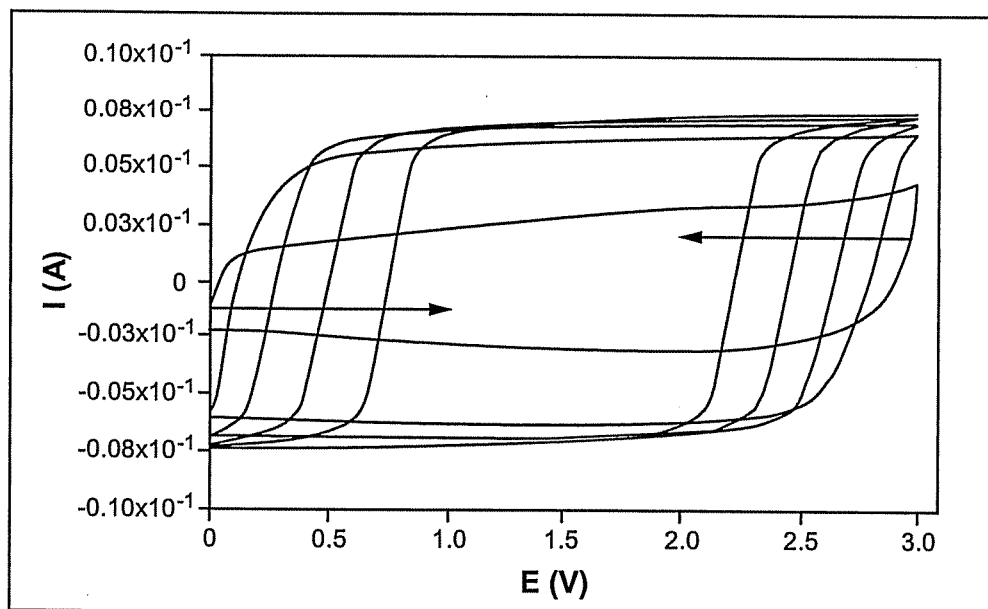
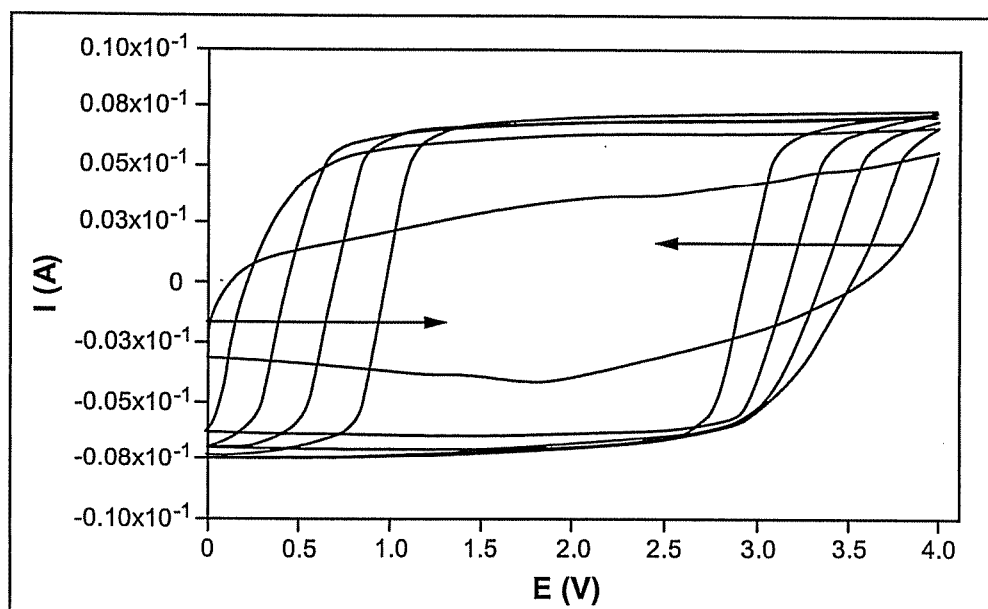
**Fig. 30**

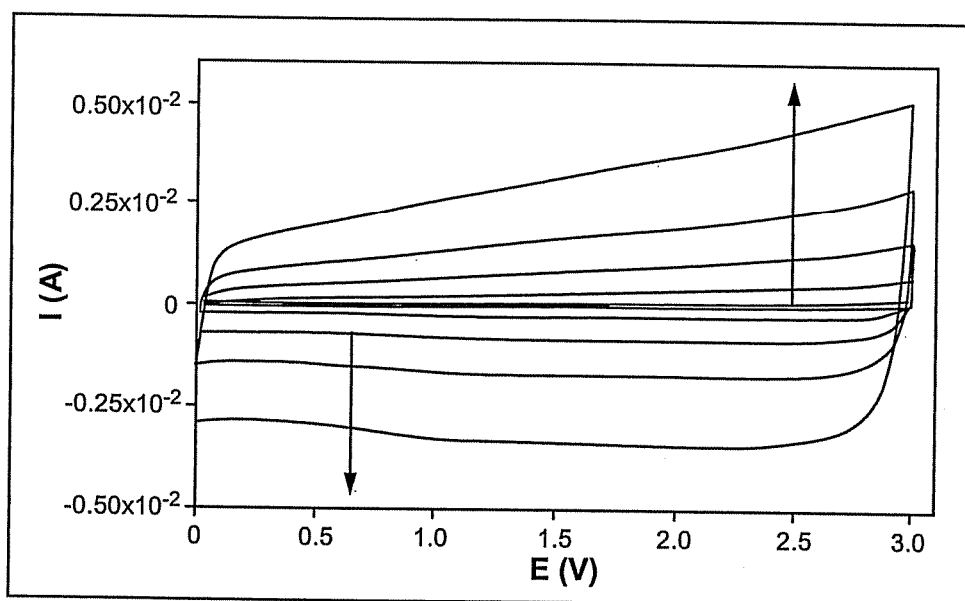
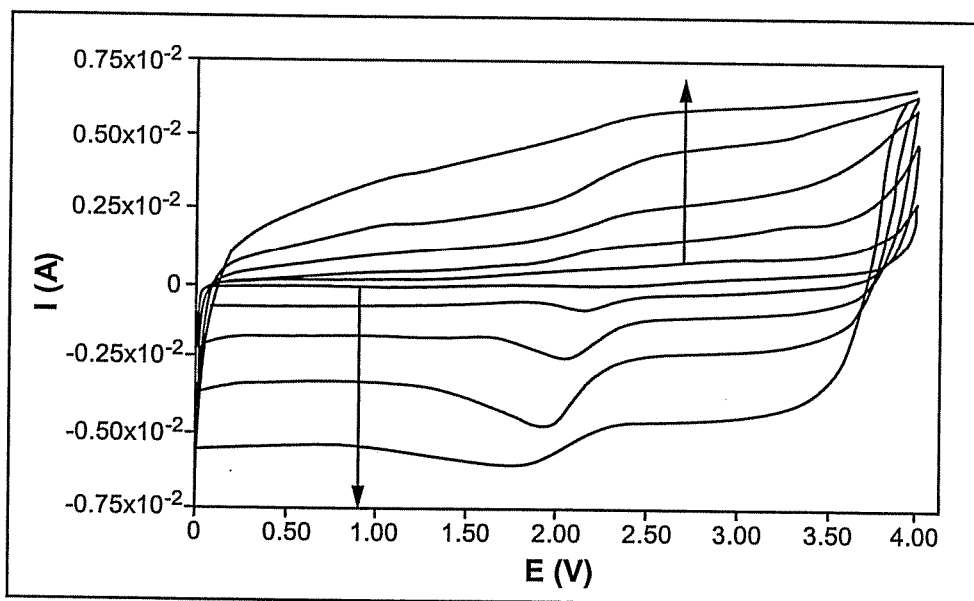
**Fig. 31**

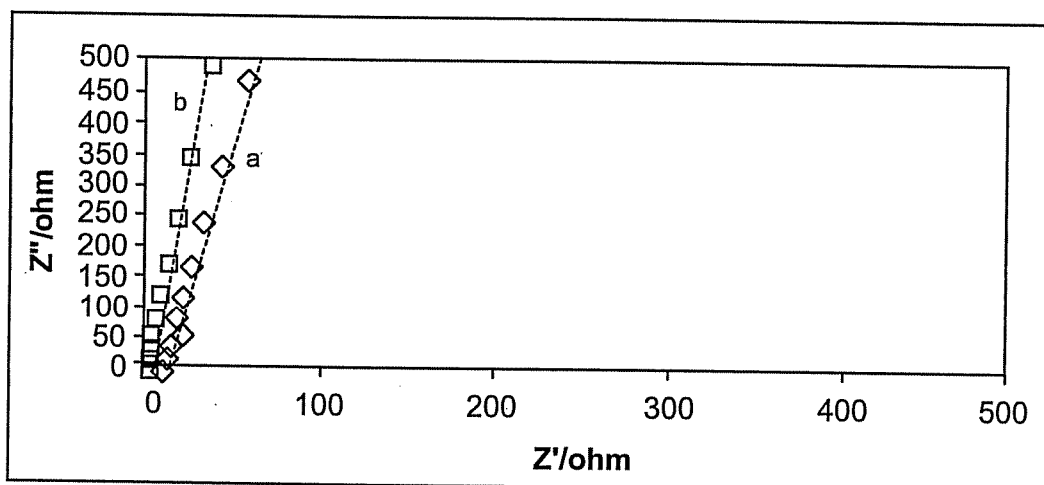
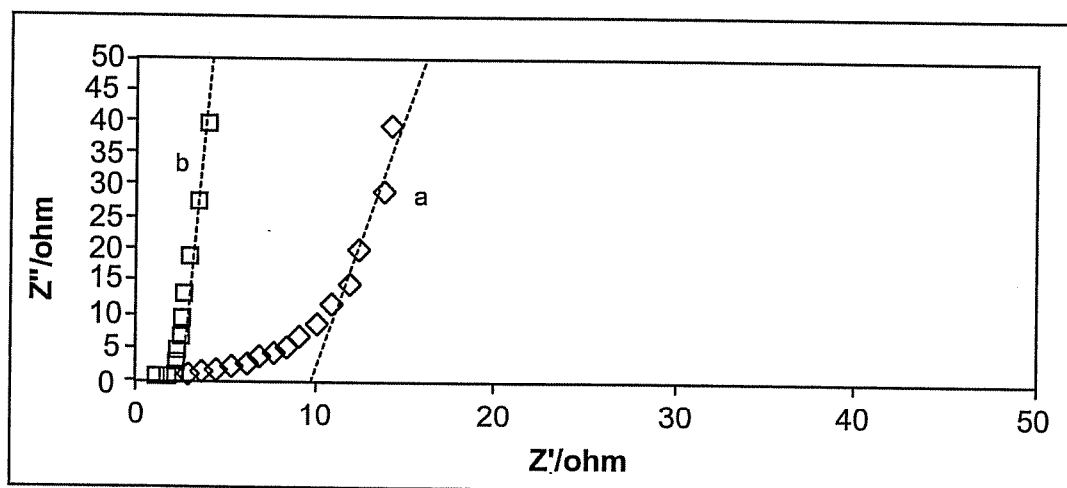
**Fig. 32A****Fig. 32B**

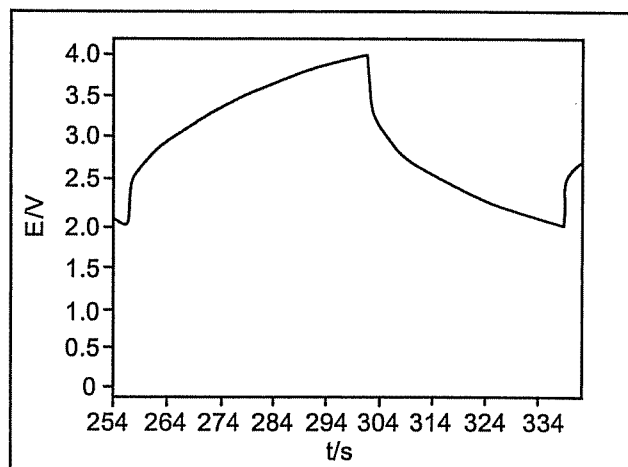
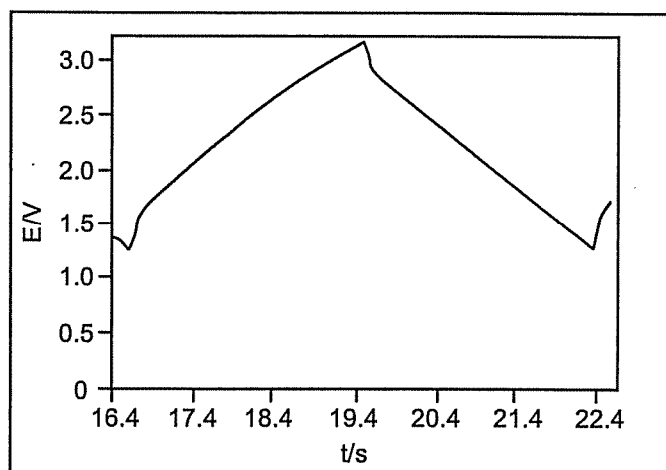
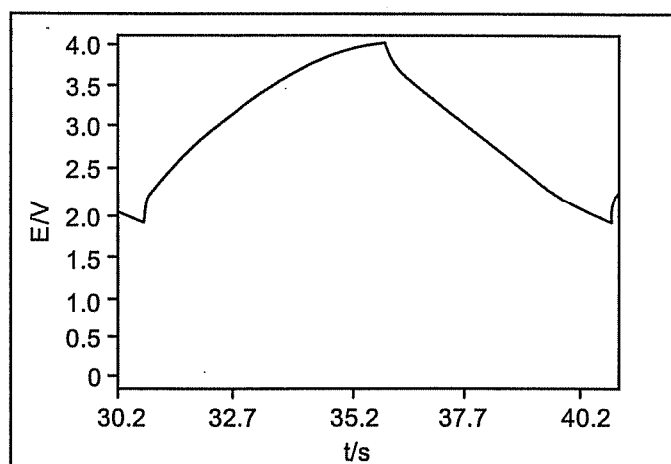
**Fig. 32C**

**Fig. 33A****Fig. 33B**

**Fig. 34A****Fig. 34B**

**Fig. 35A****Fig. 35B**

**Fig. 36A****Fig. 36B**

**Fig. 37A****Fig. 37B****Fig. 37C**