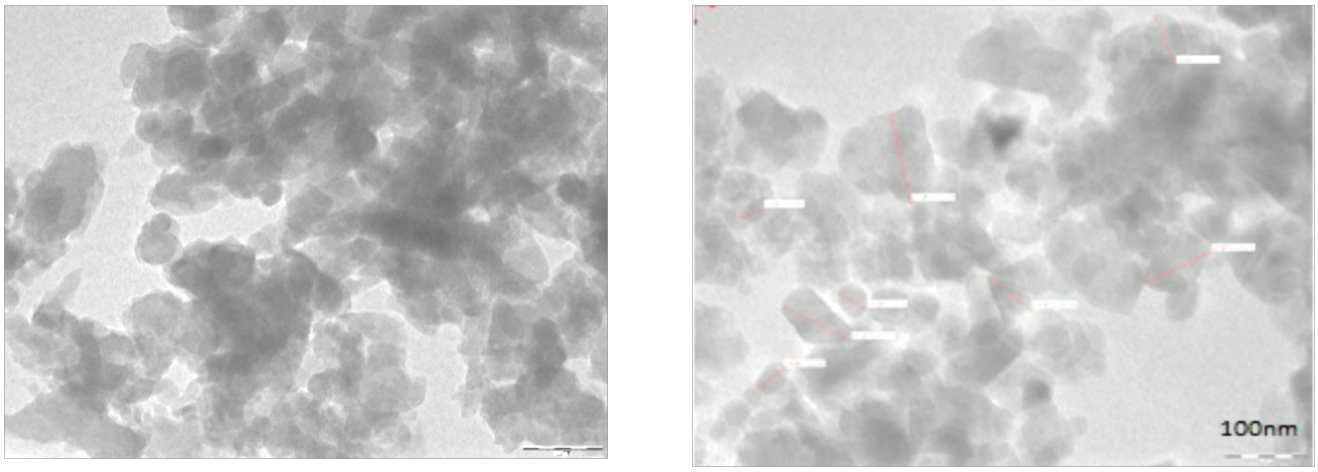

Fig. 1 (a) TEM images of PAni and (b) SnO_2

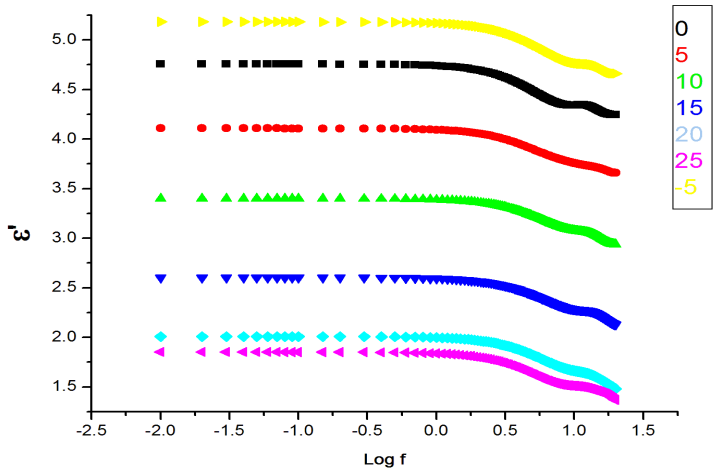

Fig.2. SnO_2- 15%

Fig.2 variation of real part (ε') and log of frequency at different temperature

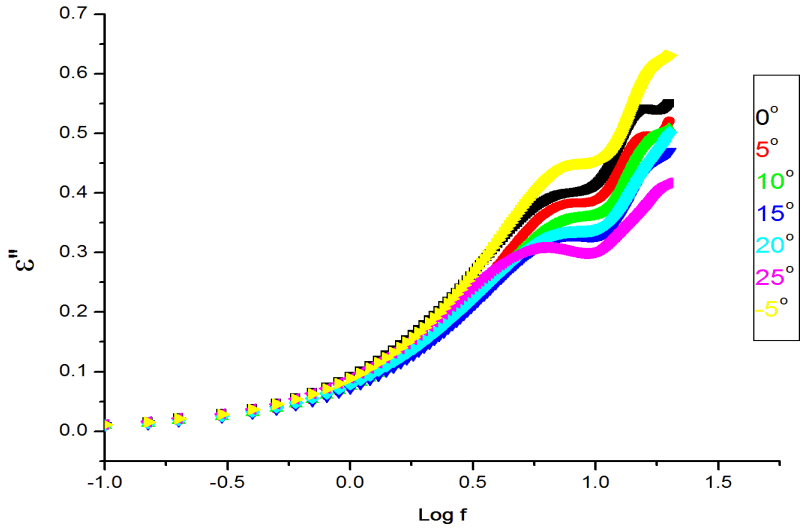

Fig.3. SnO_2- 15%

Fig. 3. Variation of dielectric loss (imaginary part ε'') versus frequency at different temperature in nanocomposite of polyaniline- SnO_2 composite

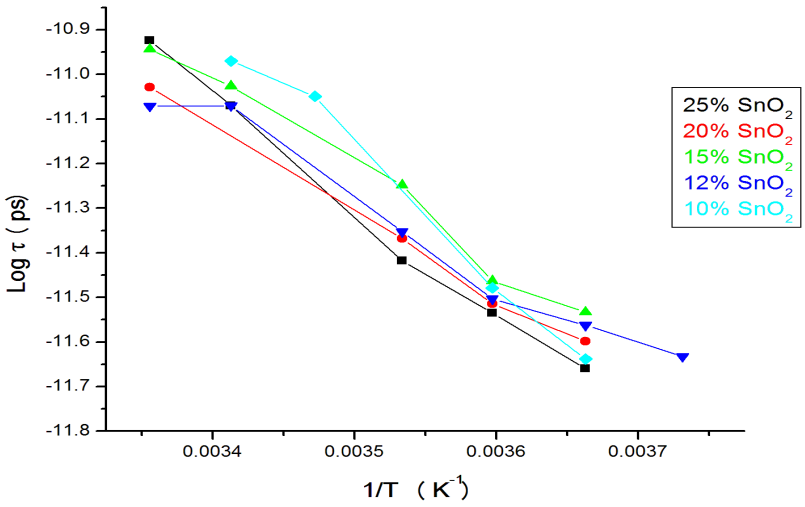

Fig. 4. Variation of log of relaxation time τ and inverse of temperature.

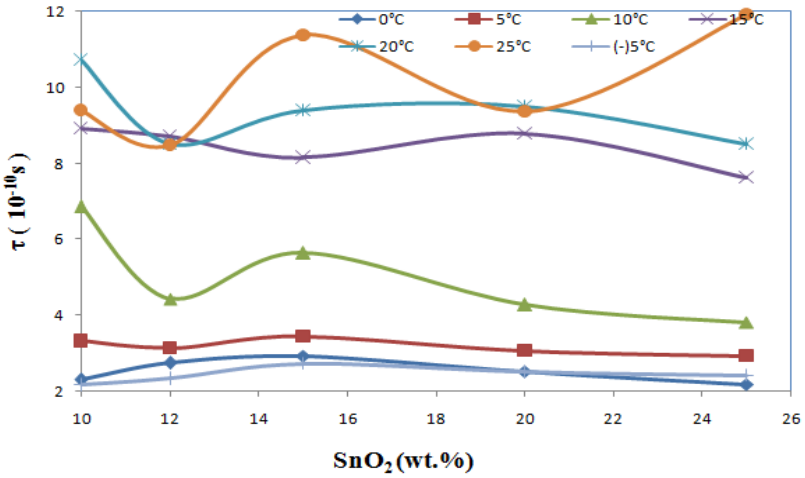

Fig. 5(a) Variation of relaxation time τ versus wt. % of SnO_2.

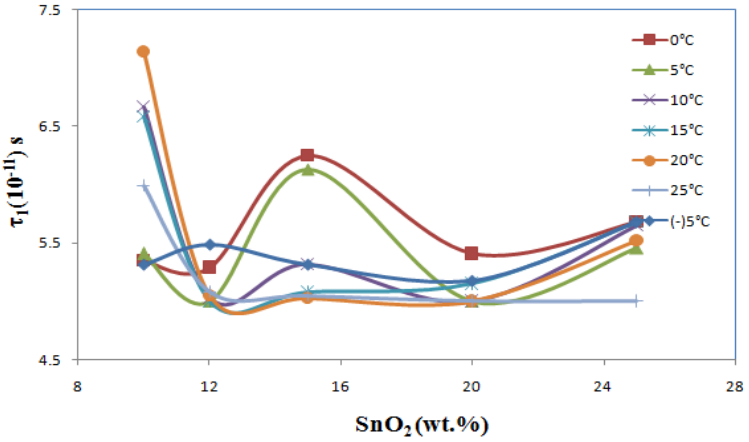

Fig.5(b)Variation of relaxation time τ_1 versus wt. % of SnO_2.

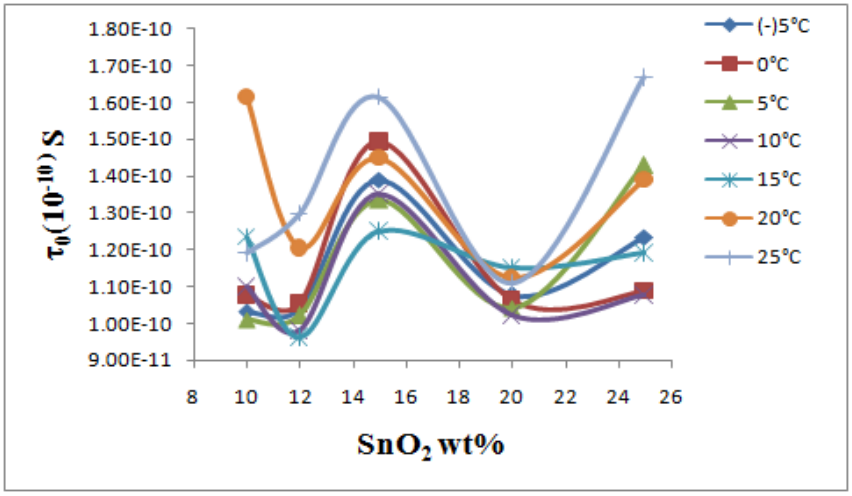

Fig.5(c) Variation of relaxation time τ_o versus wt. % of SnO_2.

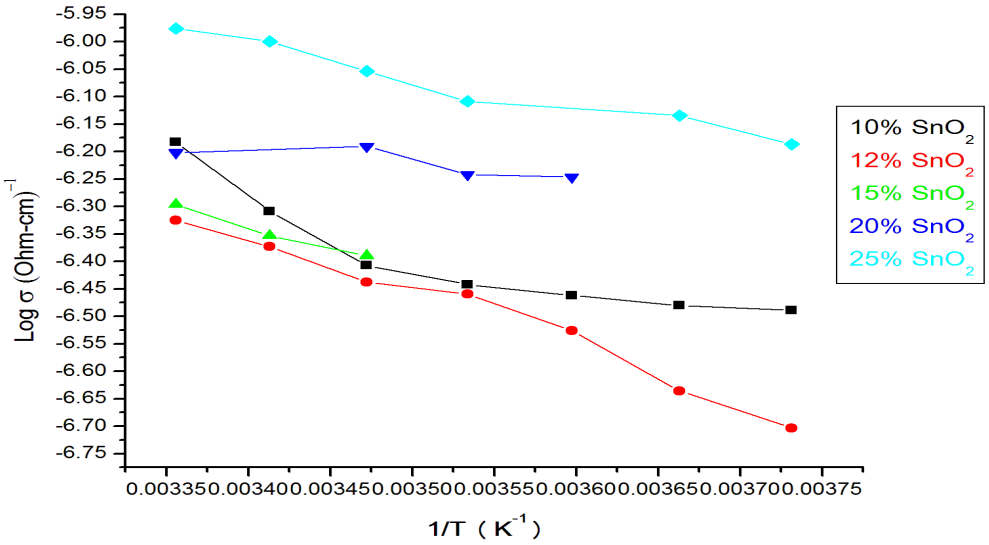

Fig. 6. Plot of logσ versus 1/T for samples 10 ,12,15,20 ,25 % of SnO_2 at 0.01GHz frequency.

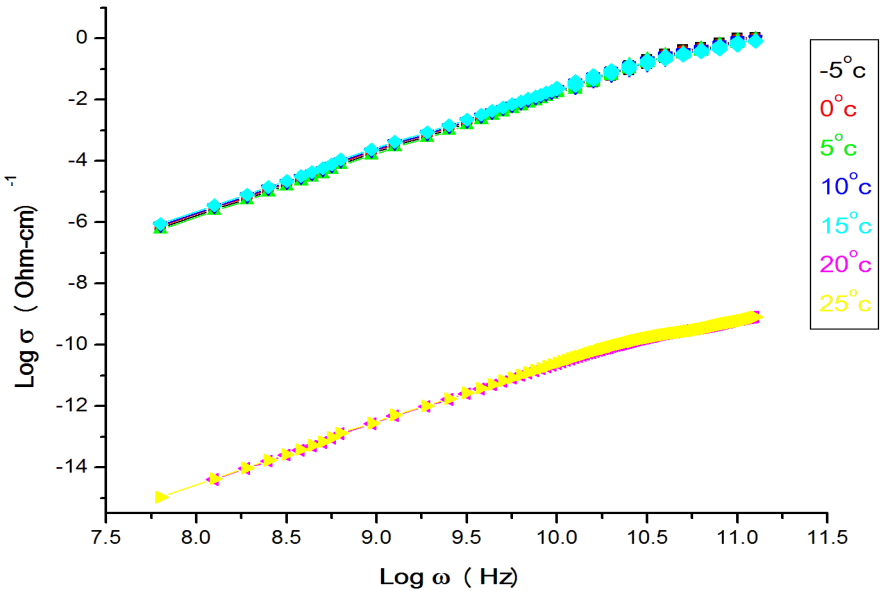

Fig.7 SnO_2 – 25%

Fig. 7. plot of log σ versus log ω for samples 25 wt.% of SnO_2 at 268K – 298K.

Table-I– Value of static dielectric constant (ε_s), effective dielectric costant (ε_p) and ε_∞ for various temperature for PAni-SnO_2 composite (25,20,15,12,10 wt. %).

Temp (K)	10 Wt.%SnO_2			12 Wt.%SnO_2			15 Wt.%SnO_2		
	ε_∞	ε_s	ε_p	ε_∞	ε_s	ε_p	ε_∞	ε_s	ε_p
268	4.63	4.709	0.003	4.809	4.88	0.002	4.66	4.71	0.002
273	4.56	4.785	0.01	4.268	4.29	0.001	4.25	4.29	0.002
278	3.77	3.98	0.014	4.071	4.11	0.002	3.66	3.84	0.013
283	3.22	3.573	0.03	3.327	3.35	0.002	2.94	3.16	0.023
288	2.49	2.709	0.032	2.271	2.32	0.008	2.14	2.38	0.047
293	1.51	1.814	0.11	1.877	1.98	0.027	1.49	1.81	0.119
298	1.46	1.613	0.066	1.659	1.79	0.045	1.37	1.62	0.111

Temp (K)	20 Wt.%SnO_2			25 Wt.%SnO_2		
	ε_∞	ε_s	ε_p	ε_∞	ε_s	ε_p
268	6.069	6.195	0.003	6.94	6.952	2E-04
273	5.398	5.401	1E-04	6.48	6.572	0.002
278	4.745	4.833	0.003	5.48	5.553	0.002
283	3.983	4.187	0.012	4.89	4.905	8E-04
288	3.031	3.344	0.03	3.9	4.007	0.006
293	2.492	2.859	0.051	3.17	3.641	0.041
298	2.201	2.589	0.068	2.85	3.123	0.03