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*Date:*

*Place: Varanasi*

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I, "*Shiva Sundar Yadava*", certify that the work embodied in this thesis is my own bona fide work and carried out by me under the supervision of "*Prof. K. D. Mandal*" from "2012" to "2017", at the "*Department of Chemistry*", Indian Institute of Technology (Banaras Hindu University), Varanasi. The matter embodied in this thesis has not been submitted for the award of any other degree/diploma. I declare that I have faithfully acknowledged and given credits to the research workers wherever their works have been cited in my work in this thesis. I further declare that I have not will fully copied any other's work, paragraphs, text, data, results, *etc.*, reported in journals, books, magazines, reports dissertations, theses, *etc.*, or available at websites and have not included them in this thesis and have not cited as my own work.

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To  
My Beloved  
Parents*

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E	Permittivity or dielectric constant
$\epsilon^*$	Complex Quantity of dielectric constant
$\epsilon'$	real components of dielectric constant
$\epsilon''$	Imaginary component of dielectric constant
i	Imaginary number
$\epsilon_0$	Permittivity of free space
$\epsilon_r$	relative dielectric constant
C	Capacitance
F	Farad
$\tan \delta$	tangent loss
$\sigma$	conductivity
f	frequency
$\lambda$	Wavelength
$\theta$	Angle theta
$^{\circ}\text{C}$	Degree centigrade
K	Kelvin
$k_B$	Boltzmann constant
$T_B$	Blocking temperature
X	Magnetic susceptibility
C	Curie constant
M	Magnetization
H	Magnetic field
Oe	Oersted
P	Density

## *LIST OF ABBREVIATIONS*

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B	Induced magnetic field
E	Electric field
P	Net polarization
P <sub>electronic</sub>	Electronic polarization
P <sub>ionic</sub>	Ionic polarization
P <sub>molecular</sub>	Molecular polarization
P <sub>interfacial</sub>	Interfacial polarization
Hz	hertz
$\omega$	angular frequency
$\tau$	Relaxation time
t	tolerance factor
Å	angstrom
R	Resistance
C	Capacitance
R <sub>b</sub>	Resistance of bulk
C <sub>b</sub>	Capacitance of bulk
R <sub>gb</sub>	Resistance of grain boundary
C <sub>gb</sub>	Capacitance of grain boundary
eV	electron Volt

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