LIST OF ACRONYMS/ABBREVIATION

a1-a6 1-6 hours Calcined Bismuth Ferrite(pre sinter powder)
A1-A6 1-6 hours Calcined Bismuth Ferrite (sintered pellet)
AE Alkaline Earth
AFM Antiferromagnetism
BFO BiFeO_3, Bismuth Ferrite
BAFO Bi_{1-x}A_xFeO_3, Alkaline Earth Substituted Bismuth Ferrite
BC-MIT Band Control Metal Insulator Transition
BIG Bismuth Iron Garnet
BFTO BiFe_{1-x}Ti_xO_3 with x = 0.12
BRFO Bi_{1-x}Re_xFeO_3, Rare Earth Substituted Bismuth Ferrite
BSFO Bi_{1-x}Sm_xFeO_3 with x = 0.12
BSFTO Bi_{1-x}Sm_xFe_{1-x}Ti_xO_3 with x = 0.12
BZT-BFO x(BaZr_{0.975}Ti_{0.025}O_3) – (1-x) BiFeO_3
CO Charge Order
DM Dzyloshinskii-Morya
DP Diffraction Pattern
DTA Differential Thermo-Gravimetric Analysis
EDAX Energy Dispersive angle X-Ray
ES Efros-Shklovskii
FC-MIT Filling Control Metal Insulator Transition
FE Ferro Electric
FESEM Field Emission Scanning Electron Microscope
FERAM Ferro Electric Random Access Memory
FoM Figure of Merit(for pyroelectric devices)
FM Ferromagnetism or Ferromagnetic
HAS Higher angle side
HEPBM High energy planetary ball milling
HTR High Temperature Regime
IS Impedance Spectroscopy
JCPDS Joint Committee on Powder Diffraction Standards
LAS Lower angle side
LRH Long Range Hopping
LTR Low Temperature Regime
ME Magneto-electric
Mf-FM Multi functional Ferroic Materials
Mf-MFm Multi functional Multi Ferroic materials
<table>
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<tr>
<th>Abbreviation</th>
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<tr>
<td>MI</td>
<td>Metal Insulator</td>
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<td>MIIF</td>
<td>Metal Insulator Interface</td>
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<td>MIT</td>
<td>Metal Insulator Transition</td>
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<td>MPB</td>
<td>Morphotropic Phase Boundary</td>
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<td>MW</td>
<td>Maxwell Wagner relaxation</td>
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<td>N10-N40</td>
<td>10-40 h milled Bismuth ferrite (garnet phase)</td>
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<td>NNH</td>
<td>Nearest Neighbour Hopping</td>
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<td>NTCR</td>
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<td>PL</td>
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<td>PM</td>
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<td>PT</td>
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<td>PVA</td>
<td>Polyvinyl Alcohol</td>
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<td>PZT</td>
<td>Lead Zirconate</td>
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<td>RE</td>
<td>Rare Earth</td>
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<td>RAM</td>
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<td>RT</td>
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<td>SAED</td>
<td>Selected Area Electron Diffraction</td>
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<td>SEM</td>
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<td>Sm: BFO</td>
<td>Bi$_{1-x}$Sm$_x$FeO$_3$ , Samarium Substituted Bismuth Ferrite</td>
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<td>Sm-Ti: BFO</td>
<td>Bi$_{1-x}$Sm$<em>x$Fe$</em>{1-x}$Ti$_x$O$_3$ , Samarium and Titanium co-substituted Bismuth Ferrite</td>
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<td>SRH</td>
<td>Small Range Hopping</td>
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<td>SSR</td>
<td>Solid State Route</td>
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<td>TEM</td>
<td>Transmission Electron Microscope/scopy</td>
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<td>TGA</td>
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<td>Ti: BFO</td>
<td>BiFe$_{1-x}$Ti$_x$O$_3$ , Titanium Substituted Bismuth Ferrite</td>
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<td>TM</td>
<td>Transition Metal</td>
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<td>VSM</td>
<td>Vibrating Sample Magnetometer</td>
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<td>VRH</td>
<td>Variable Range Hopping</td>
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<td>WH</td>
<td>Williams-Hall</td>
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