# Effect of Poling on Dielectric Properties of Lead Zirconate Titanate - Lead Magnesium Niobate Ceramics Under Uniaxial Stress

**Supattra Wongsaenmai**
*Chiang Mai University* - Thailand

## Abstract

The dielectric properties of (1-x)Pb(Mg1/3Nb2/3)O3-(x)Pb(Zr0.52Ti0.48)O3 or (1-x)PMN-(x)PZT under uniaxial stress are characterized. The (1-x)PMN-(x)PZT ceramics when x = 0.0 0.1 0.3 0.5 0.7 0.9 and 1.0 are prepared by a conventional mixed-oxide method. It is observed that uniaxial compressive stress have marked effect on the dielectric properties of PMN-PZT ceramics. The different responses to the applied stress between the poled and unpoled PMN-PZT ceramic are elucidated here. It is found that changes of the dielectric constant of the poled PMN-PZT with the applied stress are dependent of the ceramic compositions. The dielectric constant of the PZT-rich compositions increases with increasing applied stress, while that of PMN-rich composition decreases. On the contrary, the changes of the dielectric constant of the unpoled PMN-PZT with the applied stress are independent of the ceramic compositions. However, it is very of interest to observe that changes of the dielectric loss tangent with the applied stress of the poled and unpoled PMN-PZT ceramics are independent of the ceramic compositions.