State-of-the-art characterization technique of dielectric and ferroelectric materials

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Reliability evaluation of dielectric materials

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Higher reliability of electronic devices are required as well as their miniaturization along advancement of technologies for IoT (Internet of things) or the connected world. Electronic devices are used under various harsh conditions, such as at high temperatures, or at high electric fields. In dielectric application fields such as MLCC (multilayer ceramic capacitor), reliability improvement is one of the most important subjects, and evaluation methods for the reliability is increasing their importance. In the presentation, KFM (Kelvin probe force microscopy) analysis for dielectric degradation mechanism, TSDC (Thermally Stimulated Depolarization Current) analysis and DLTS (Deep Level Transient Spectroscopy) for reliability-related properties of dielectrics are introduced.