

(초청강연)

## Growth and Characterization of $ACu_3Ti_4O_{12}$ ( $A=Ca, Sr$ ) Single Crystals

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A cubic perovskite-type  $CaCu_3Ti_4O_{12}$  compound has recently drawn a great attention because of an extraordinary high permittivity ( $\sim 10^4$  at 1 kHz) at room temperature and its near temperature-independence over a wide temperature region, and thus numerous literature have been reported on CCTO polycrystalline ceramics and thin films. However, only a few literature have been reported on the CCTO single due to the lack of information about the CCTO primary phase field. On the basis of our recent experimental determination of the CCTO primary phase field, we could grow  $ACu_3Ti_4O_{12}$  ( $A = Ca, Sr$ ) single crystals using both top-seeded solution growth and flux growth methods. This presentation will include three major parts. In part I, the thermal decomposition reaction of CCTO and its primary phase field in the CaO-CuO-TiO<sub>2</sub> ternary system will be presented. Detailed growth conditions of  $ACu_3Ti_4O_{12}$  ( $A = Ca, Sr$ ) single crystals and characteristics of as-grown crystals will be followed in Part II. Part III will be comprised of dielectric properties of as-grown  $ACu_3Ti_4O_{12}$  ( $A = Ca, Sr$ ) single crystals. Our experimental results will be compared with those of previous reports for discussion.