

**FY 2019 Nanotech Career-up Alliance
Piezoelectric Materials Device Course**

■ **Purpose:**

Piezoelectric $\text{Pb}(\text{Zr}, \text{Ti})\text{O}_3$ thin films has been actually used for the MEMS device such as gyro sensors, inkjet printers and energy harvester devices. In this course, participants take a lecture of basis of piezoelectric materials, and practical experiment of $\text{Pb}(\text{Zr}, \text{Ti})\text{O}_3$ thin films deposition by sputtering, evaluation technique by X-ray diffractometer, SEM and PE hysteresis measuring system.

■ **Number of participants:** 3persons (maximum)

■ **Time and period:** From September 11 (Wed) to September 13 (Fri), 2019

■ **Venue:** Kyoto University Nanotechnology Hub (* Yoshida Campus, Kyoto University)

<http://www.nanoplat.cpier.kyoto-u.ac.jp/access/>

■ **Contents:**

Day 1 – September 11 (Wed)

[1] Guidance

[2] PZT thin films deposition by RF magnetron sputtering

We will lecture on basic study on piezoelectric material during waiting time of sputtering(2h).

Day 2 – September 12 (Thu)

[3] Crystal structure analysis by X-ray diffractometer

[4] Observation of surface and/or cross section of PZT thin film by SEM

[5] Deposition of upper electrode by thermal evaporator

Day 3 – September 13 (Fri)

[6] Evaluation of PE-hysteresis loop of PZT thin film by piezoelectric measuring system.

[7] Summarizing

■ **Tuition:** 10,500 yen

■ **Contact:**

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