

# Development of Oxide Thin Films for Electronic Device Applications



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<b>Technical Support Skills</b>	<ul style="list-style-type: none"> <li>• Thin films</li> <li>• Oxides</li> <li>• Fuel Cells</li> </ul>
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## Research Contents

### 【SEEDs】

Developing new E&E devices through the high quality deposition techniques of oxide thin films.

- Achieving Intermediate-temperature Solid Oxide Fuel Cell (IT-SOFC) through thinning the electrolyte This will bring the reduction of the operating temperature of SOFCs as low as 400°C, which might enhance the usage of SOFCs with reducing device costs. To obtain high quality electrolyte, we have been developing advanced deposition technique with highly controlled oriented films. As can be seen in the figure, 110-oriented Y-doped BaCeO<sub>3</sub> (BCYO), which is one of the famous proton conductors, was successfully obtained. Using this film as an electrolyte, we have been developing SOFC cells to realize IT operations.

- Improvement of oxide thin film transistors by use of high quality oxide thin films.

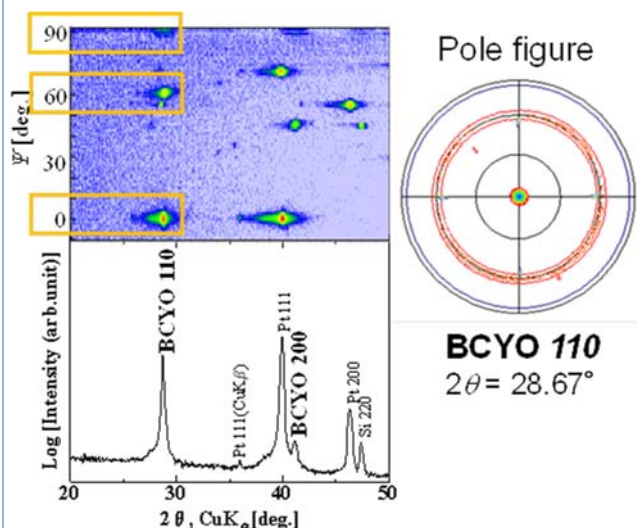


Fig. X-Ray analysis result of proton conductive BCYO thin films. The film is highly 110-oriented and can be considered to be a candidate for an electrolyte of IT-SOFCs.

## Available Facilities and Equipment

Aero-sol deposition machine	Oxide MOCVD machine (Hand-made)
Spin coater	Hall measurement system(Ecopia)
Magnetron sputtering machine (Toei Science)	Thickness monitor (Otsuka Electronics)
Precision source meter (2ch)(Agilent B2902A)	Prober (Vector Semicon)
Electro-chemical measurement system (NF)	