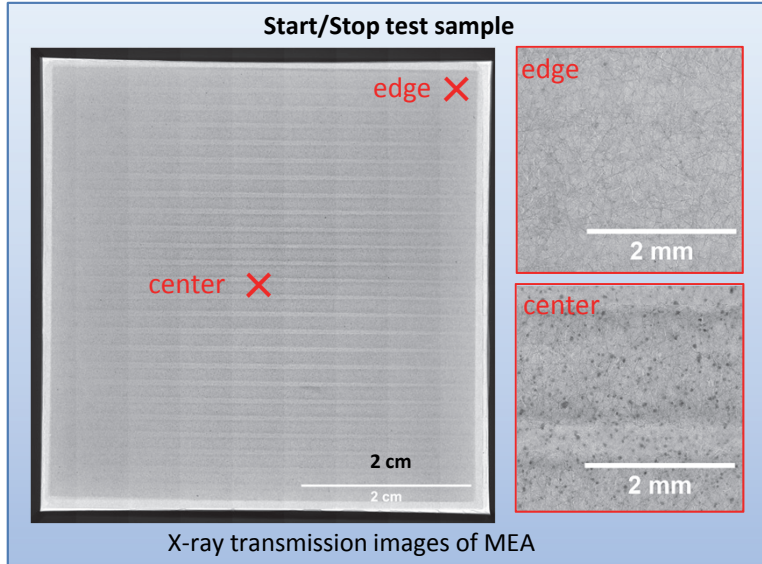


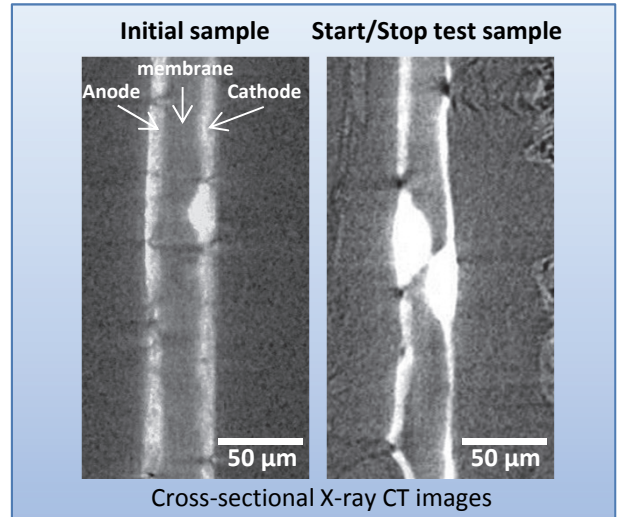
# Three-dimensional analysis of MEA for PEFC

The whole contents of MEA can be grasped using High-resolution X-ray CT without destroying. The porous structure of catalyst layer can be observed by FIB/SEM, and 3D reconstruction image can form from serial section SEM images.

## Non-destructive measurements using high resolution X-ray CT



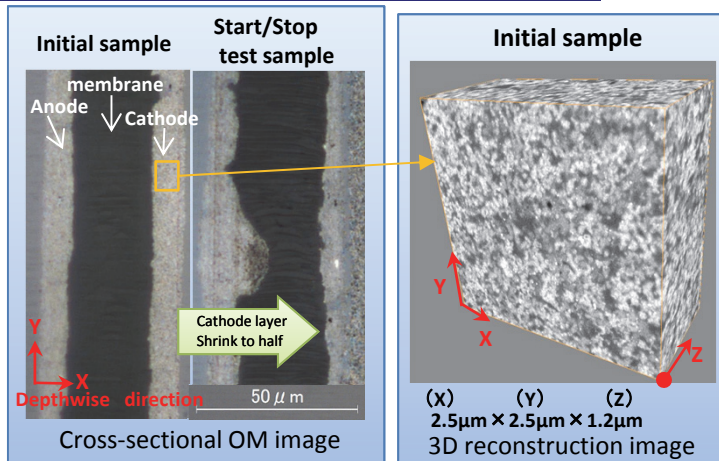
- ✓ Start/Stop test sample had granular high contrast domains, and those domains existed on center of MEA.



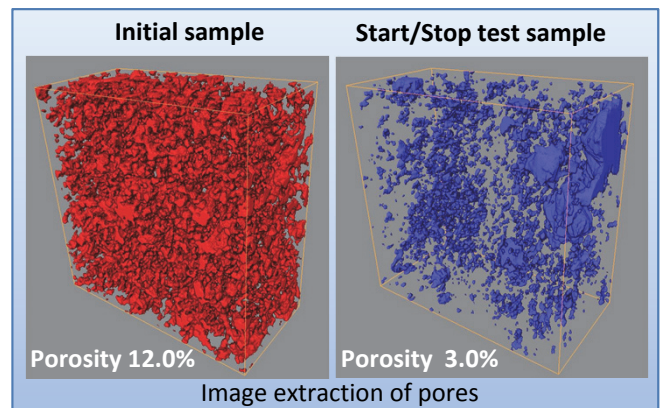
- ✓ Granular high contrast domains were enlarged parts of catalyst layer. Initial sample also had some slightly enlarged parts. Thickness and shapes of catalyst layer were different between samples.

- Transmission image provides high-resolution and extensive (up to 12 × 7 cm) image by montage function.
- X-ray CT provides the 3D form of the 500 × 500 μm in spatial resolution of the μm order.

## 3D analysis of catalyst layer by FIB/SEM



- FIB/SEM can acquire serial cross-sectional images at specific part, and 3D reconstruction image provides arbitrary cross-sectional image and pore (or material) structure.
- Image analysis provides numerical information such as size and proportion of pore.



- ✓ Start/Stop test sample had less porosity than Initial, and depending on the location, had coarse pores.

