

Electronic Supplementary Information (ESI)

**Pulsed neutron imaging for differentiation of ice and liquid water towards
fuel cell vehicle applications**

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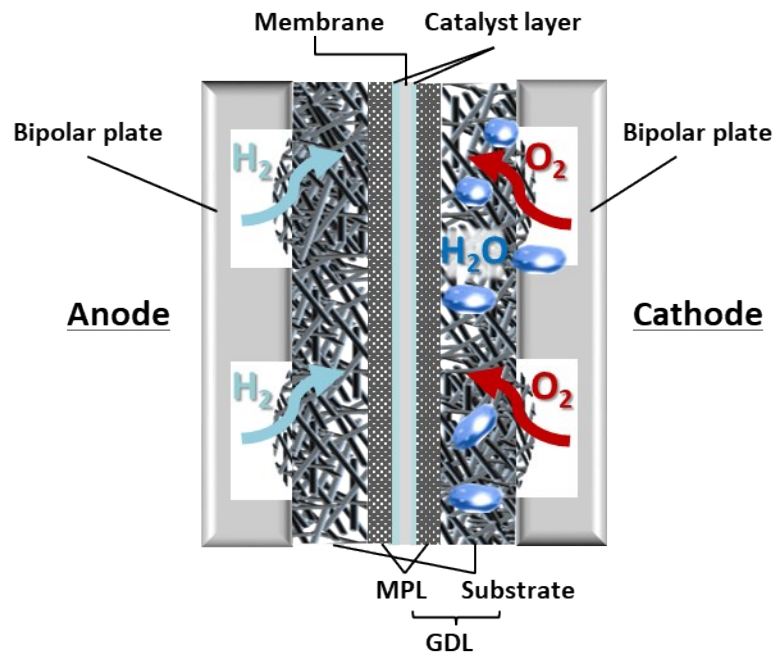
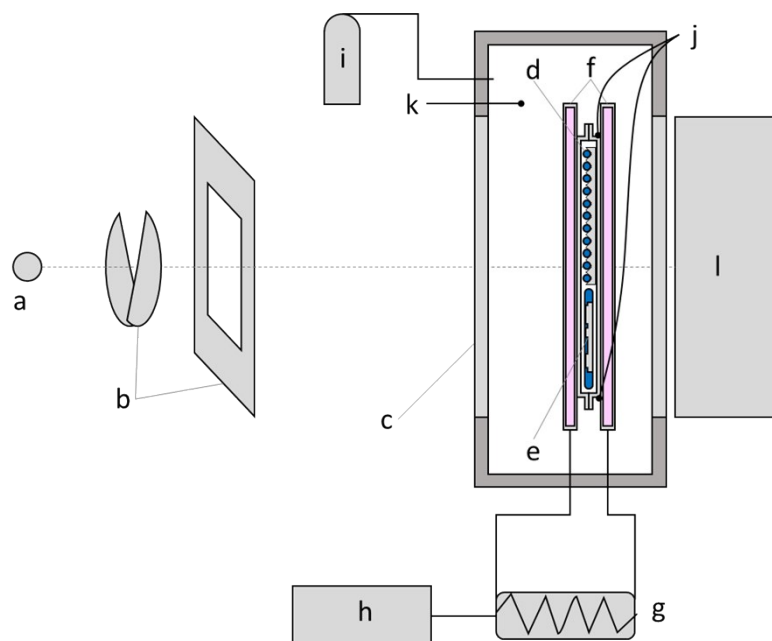
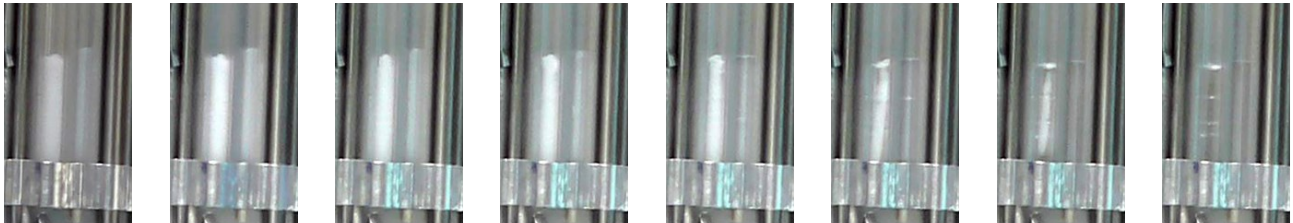
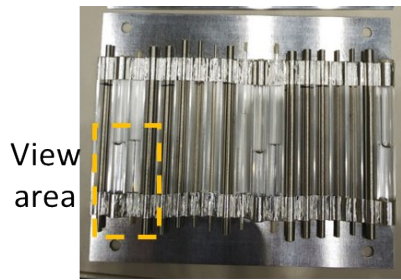


Figure S1: Schematic illustration of PEFCs.



- a. Pulsed neutron source,
- b. Beam choppers and collimator,
- c. Thermal insulation chamber with Al alloy windows,
- d. Capillaries on a corrugated Al alloy plate,
- e. Additively manufactured Ti plate sealed in an Al foil bag,
- f. Cooling pads,
- g. Heat exchanger,
- h. Chiller,
- i. Dry gas supplier,
- j. Thermocouples,
- k. Dew point meter,
- l. Area detector.

Figure S2: Schematic top view of full scale experiment.



Elapsed time in thawing process

Figure S3: Thawing process of ice in the capillary observed by visible light. The figure is at a different timing from the measurement by the CCD camera. The change in each hue is owing to the automatic adjustment function of the WEB camera.