

# Realization of a low carbon society through game changing technologies

**Development of novel proton conductors for intermediate-temperature fuel cells**

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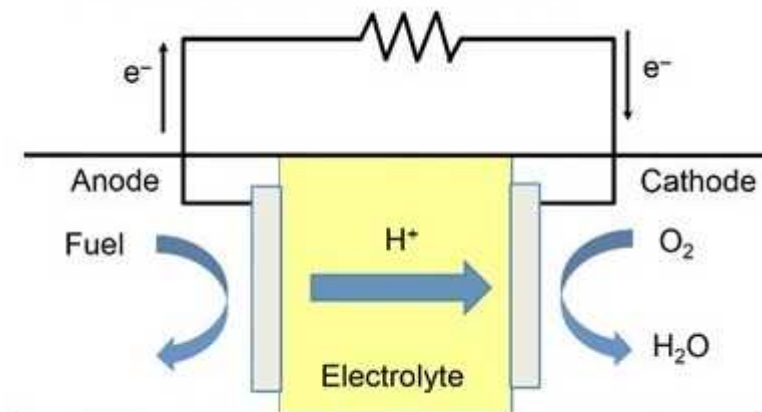
## Objective :

Development of proton-conducting solid electrolytes with high performance and stability for the realization of intermediate-temperature fuel cells operating at 300-400°C.

## Outline :

Since there are no solid electrolytes with practical proton conductivity at intermediate temperatures, fuel cell systems have not been developed. In this study, we aim to develop novel proton-conductive solid electrolytes which have a proton conductivity of more than  $10^{-2}$  S cm<sup>-1</sup> and chemical and thermodynamic stability. Furthermore, electrode materials that are compatible with the electrolyte will be also developed.

## Intermediate-temperature fuel cells (Charge carrier : proton)



## Features

- ✓ No fuel dilution  
⇒ High fuel utilization
- ✓ Wide selection of cell components
- ✓ High fuel flexibility
- ✓ Mitigation of thermal expansion
- ✓ Reduction of heat loss
- ✓ Shorter start-up time  
etc.