

ABSTRACT OF THE DISCLOSURE

[Task] Provided is an electrochemical cell, a power generation method using the electrochemical cell, and a manufacturing method of a hydrogen gas using the electrochemical cell that are suitable for the use in a temperature range between 200°C and 600°C.

[Solution] A fuel cell 1 (electrochemical cell) includes a proton conductor 5 represented by $(\text{Li}, \text{H})_{14-2x}\text{Zn}_{1+x}(\text{GeO}_4)_4$ where a portion of lithium ions of $\text{Li}_{14-2x}\text{Zn}_{1+x}(\text{GeO}_4)_4$ where x is a number equal to or more than 0 is substituted with protons, the proton conductor having electric conductivity of 0.01 S/cm or more at 300°C, an anode 6 provided on one side of the proton conductor, a cathode 7 provided on another side of the proton conductor, a first separator 9 provided on an anode side of the proton conductor to define an anode chamber 8, and a second separator 12 provided on a cathode side of the proton conductor to define a cathode chamber 11.