

## Simulation of a 100 kW Molten Carbonate Fuel Cell System

Agnesia Permatasari, 유 준<sup>†</sup>

부경대학교

(jayliu@pknu.ac.kr<sup>†</sup>)

Fuel cells are high efficiency and low polluting electrochemical devices, devised to convert the hydrogen chemical energy directly into electrical energy. Many alternative materials can be used as fuels and be converted into hydrogen. Among them, diesel is a potential fuel but it contains sulfur component like Dibenzothiophene (DBT) that can poison the catalyst in the fuel cell module. For this reason, desulphurization process is needed. After desulphurization, diesel goes through several processes, such as steam reforming, water gas shift reaction, purification, and finally, molten carbonate fuel that generates 100 kW of electrical energy. All processes will be simulated using Aspen Hysys 8.4. Techno economic analysis will also be done to calculate power generation cost.