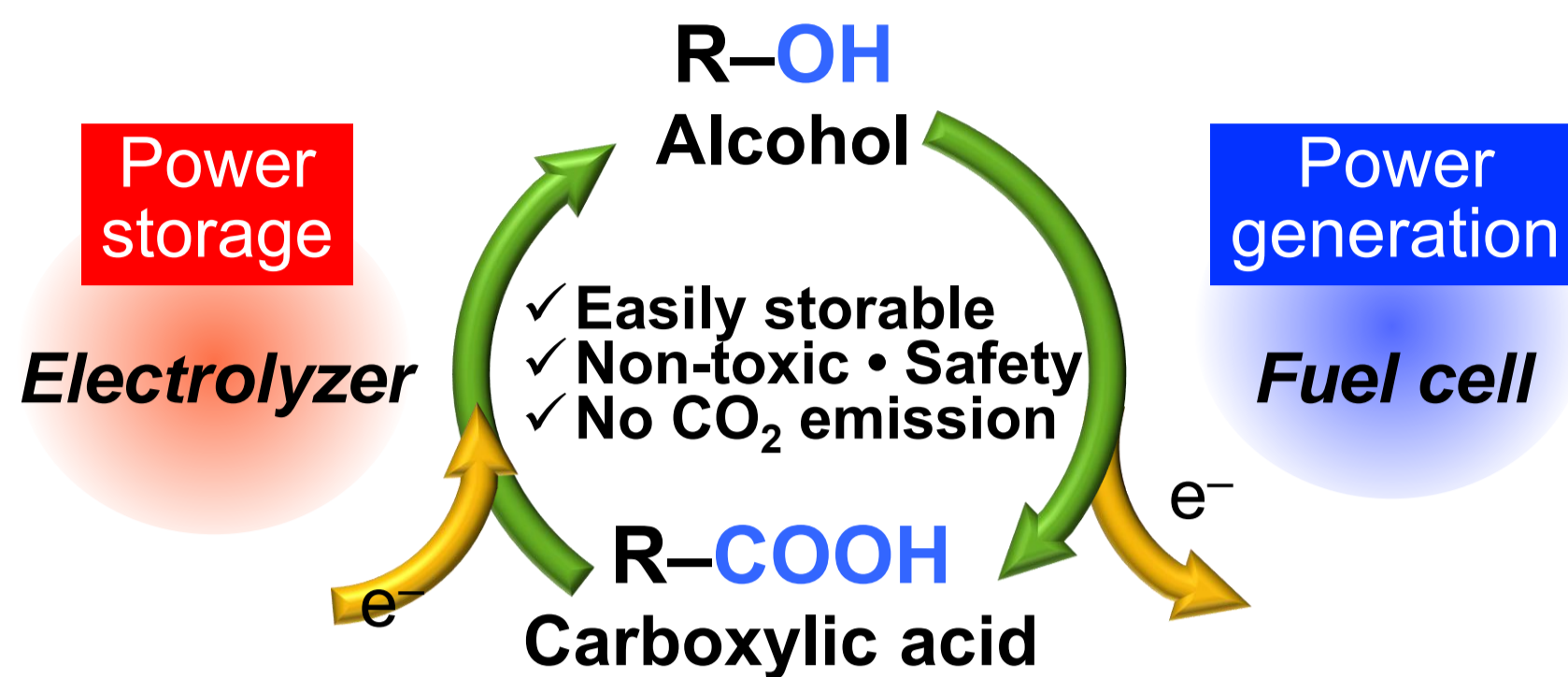


Power Storage Facilities

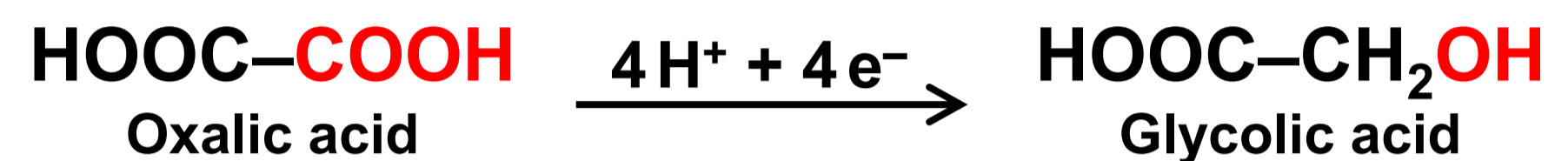
Environmental Friendly Power Storage with Electrochemical Cells Using Natural Carboxylate

Prof. Miho YAMAUCHI (Kyushu University)

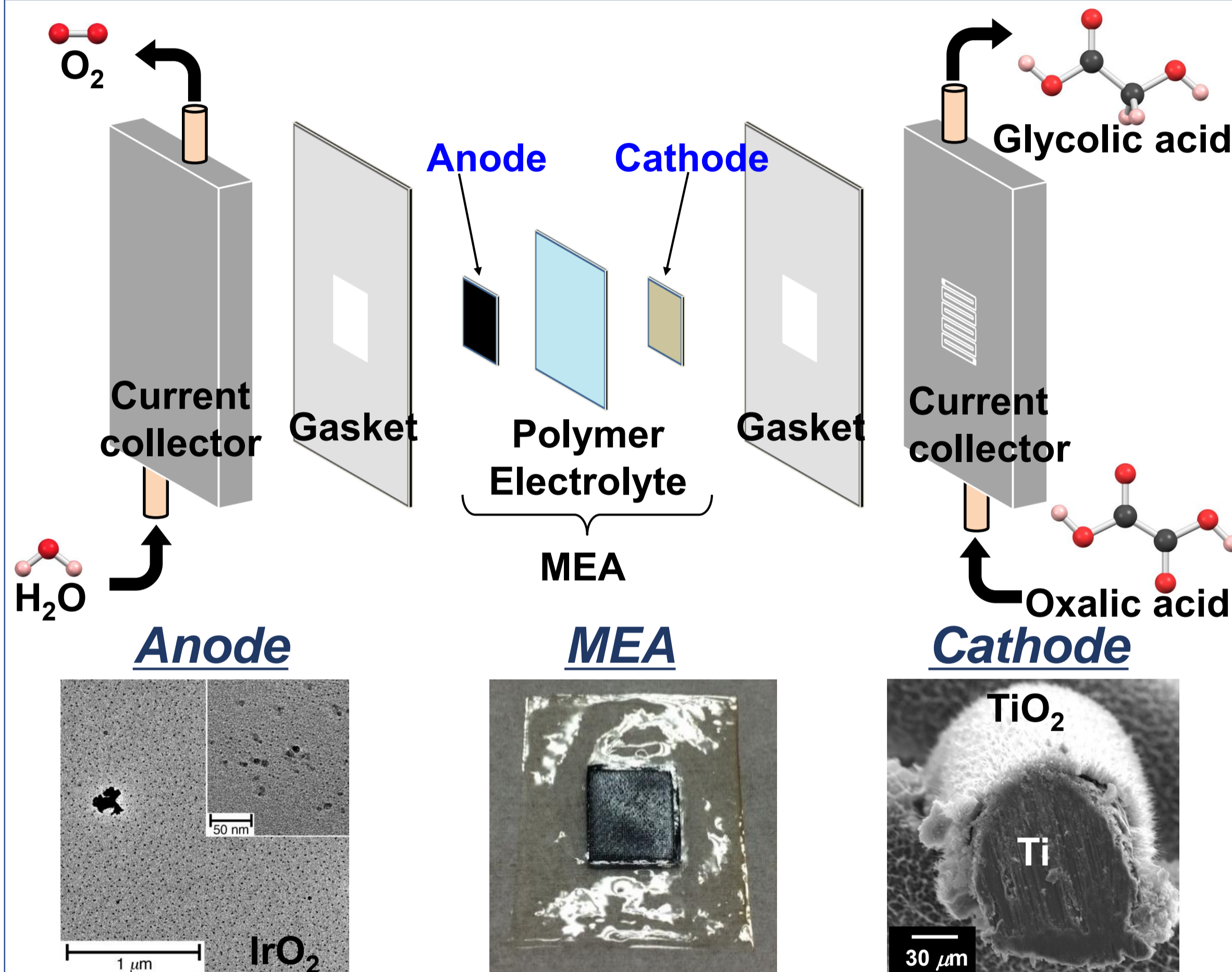
1. Carbon-Neutral Energy Cycle Using Alcohol/Carboxylic Acid Redox Couple



- Alcoholic compounds are attracting much attention as “liquid” energy carrier having “high energy density” and “high chemical stability.”
- A flow-type electrolyzer, which enables continuous electrochemical production of glycolic acid (alcohol) from oxalic acid (carboxylic acid), was newly developed.

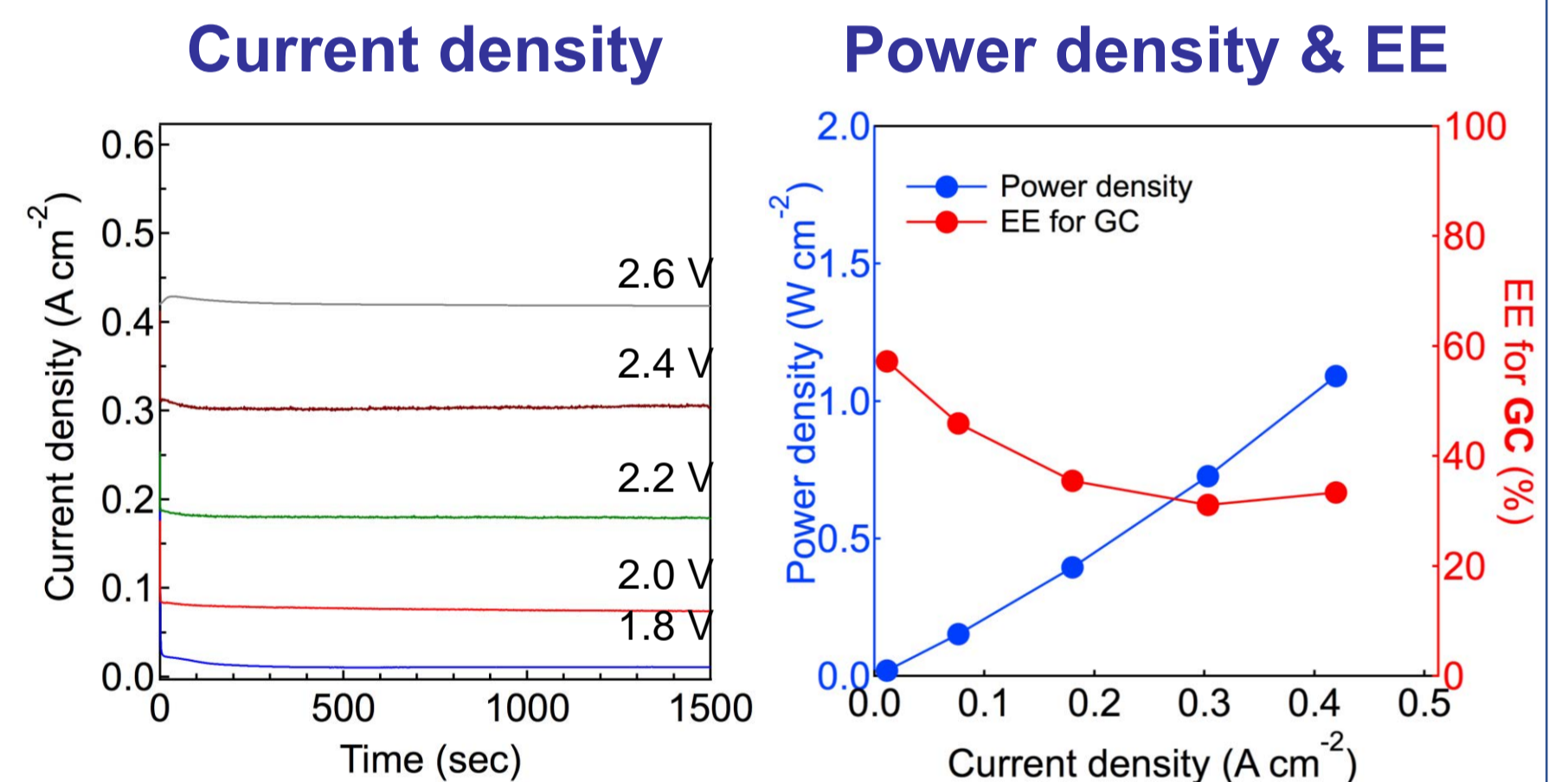


2. Polymer Electrolyte Alcohol Electro-synthesis Cell (PEAEC)



A polymer electrolyte alcohol electro-synthesis cell (PEAEC), which realizes continuous electrochemical reduction of oxalic acid to form glycolic acid without any additives into the reaction solution, has been newly developed.

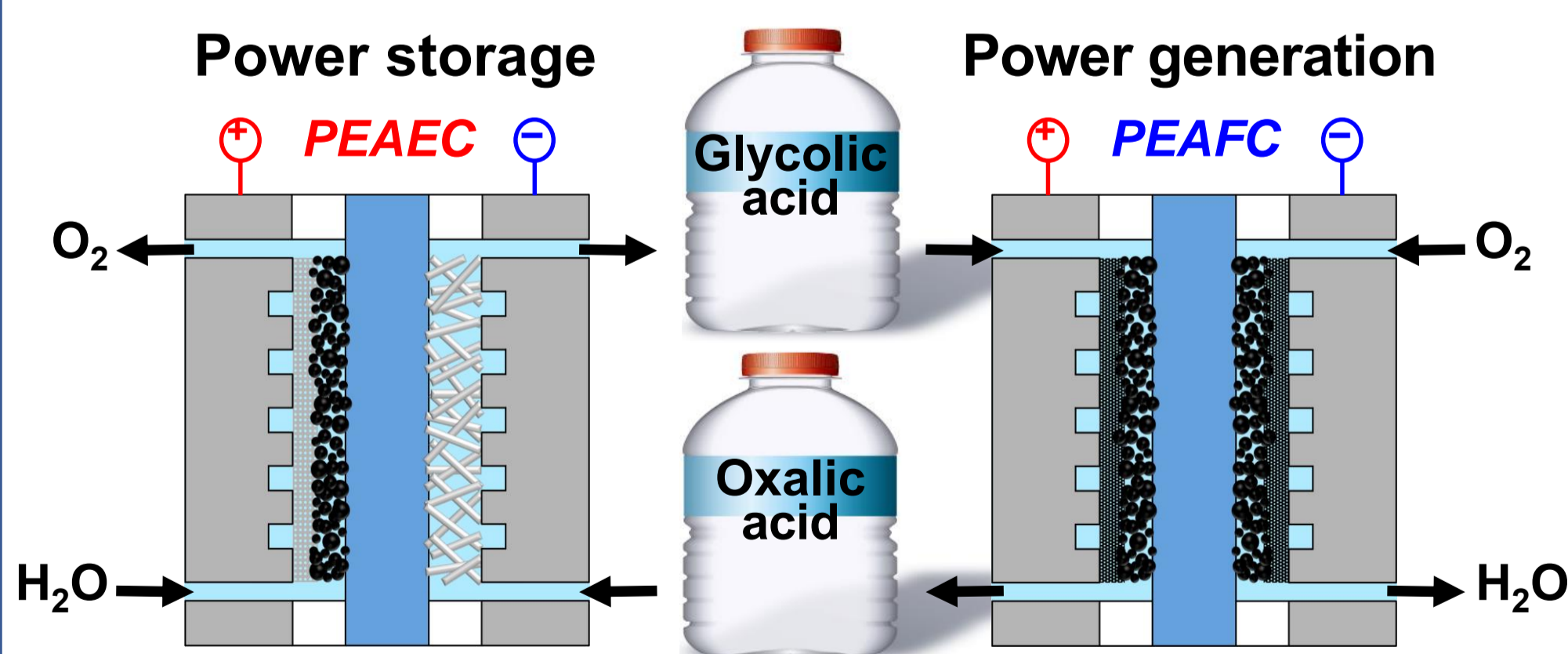
Performance



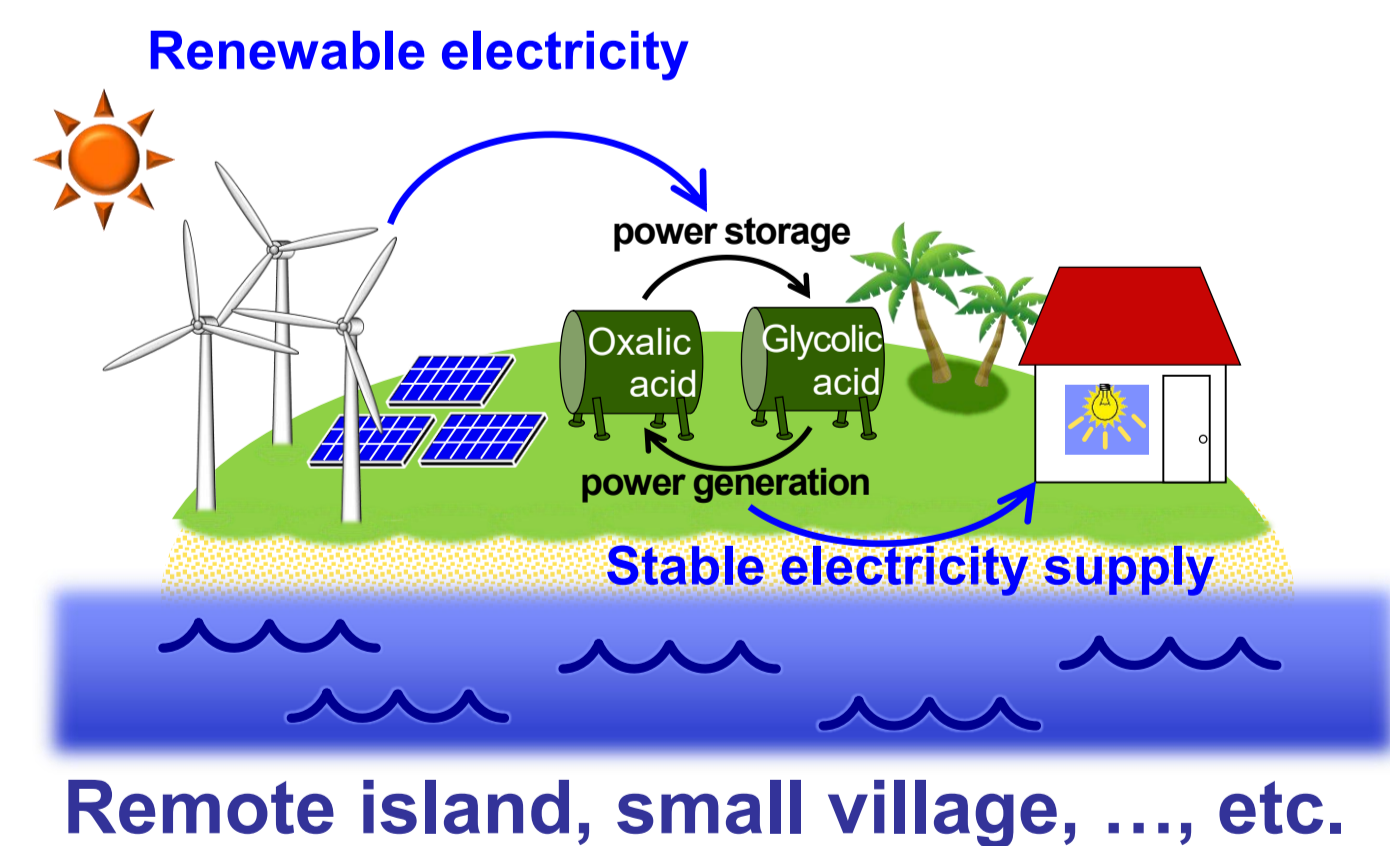
Long-time stability and High energy conversion efficiency (EE) of the PEAEC were demonstrated.

3. Prospective Applications

Storage of renewable electricity



Local production for local consumption



- ✓ The electric power company can store surplus electricity derived from renewable energy and can stably supply electricity to customers.
- ✓ This application is suitable for usage in small-scale and fixed place.

4. Patent Licensing Available

Patent No.: WO2017/154743 (JP, US, EP, CN, IN)
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