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Batteries and fuel cells are key technologies in the future energy production

1. Introduction

Concept of "three zeros" power generation system. Zero energy input, Zero matter input, Zero emission.

2. How to achieve" three zeros" power generation system.

Hydrogen redox electric power generation, Lithium redox electric power generation.

3. Electrostatic-induction water electrolysis (ESIWE)

Principle, Laboratory experiment details, Direct measurements of electrical power requirements, Nature of the internal energy creation.

4. Concepts of industrial applications of the three zeros power generation systems

All the constructions of the three zeros power generation systems are assumed to utilize the commercially existing bipolar water electrolyzers, fuel cells, fuel cell stacks and lithium-ion battery modules, currently operated in industry.

High power application for central station power generation: Hydrogen redox electric power generation system(HREG)., Combined energy cycle of solar battery, ESI bipolar water electrolyzer and fuel cell.

Low power application for specific propulsion systems:

On-board hydrogen redox power generators for infinite cruising range electric vehicles (Abstract of the Conference). On-board lithium redox charge—discharge reciprocating power generator for infinite cruising range electric vehicles.

5. Conclusive remarks

Thermodynamic cycle of the three zeros power generation system. Direct electrostatic-to-chemical energy conversion Three zeros power generators are not related to any perpetual motion machine, it works within the laws of thermodynamics through internal energy creation.

Biography

Katsutoshi Ono received B. Eng. Degree from Kyoto University, Japan, in 1961, degree of Dr. Sci. from Faculté des Sciences, Université de Paris in 1967. He was researcher at Ecole des Mines de Paris, 1965-1967, Professor of Materials Science, Kyoto University, 1982-1997, Energy Science & Technology, 1997-2001. He is Currently Professor Emeritus.

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