



Contribution ID: 239

Type: **Poster presentation (105min)**

## **Thermodynamic analysis of a novel liquid air energy storage system**

*Thursday 10 July 2014 10:30 (2h 15m)*

In this study, a novel liquid air energy storage system is proposed for electrical power load shifting applications. It is a combination of an air liquefying cycle and a gas-turbine power generation cycle without combustion, including cold-energy regeneration. A thermodynamic calculation is conducted to investigate the performance of this system, and the optimization analysis is performed to improve the system efficiency. The results show that a novel liquid air energy storage system could be a very effective system for electrical power storage with high efficiency and high energy density, and have extensive application prospects.

**Author:** Dr XUE, Xiaodai (Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing 100190, China)

**Co-authors:** Mr CUI, Chen (Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing 100190, China); Prof. WANG, Junjie (Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing 100190, China); Mr CHEN, Liubiao (Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing 100190, China); Mr WANG, Sixian (1.Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing 100190, China;2.University of Chinese Academy of Sciences, Beijing 100049, China); Mr ZHANG, Xuelin (1.Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing 100190, China;2.University of Chinese Academy of Sciences, Beijing 100049, China); Prof. ZHOU, Yuan (Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing 100190, China)

**Presenter:** Prof. WANG, Junjie (Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing 100190, China)

**Session Classification:** Thu-Mo-Posters Session 3.4

**Track Classification:** C-14: New devices and novel concepts