

#### 초청강연4

### A Study on the Electrode Characteristics of a New High Capacity Non-Stoichiometry Zr-Based Laves Phase Alloys for Anode Materials of Ni/MH Secondary Battery

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#### Introduction

Nickel-metal hydride (Ni-MH) batteries using hydrogen storage alloys as negative electrodes have been developed and commercialized to meet the strong market demand for a power source with high energy density, high rate capability, long cycle life, and good environmental compatibility. In order to improve further the energy density of Ni-MH batteries, Zr-based Laves alloys should replace the commercial MmNi<sub>5</sub>-type alloys, which have already reached their energy density limitations.

For the purpose of developing the Zr-based Laves phase alloy with higher capacity and high rate capability for electrochemical application, extensive work has been carried out in KAIST. After careful alloy design of ZrMn<sub>2</sub> hydrogen storage alloys, Zr(Mn-V-Ni)<sub>2.4</sub> alloys and Zr(Mn-V-Ni)<sub>2</sub>  $\alpha$  alloys have a suitable plateau pressure and are able to discharged in KOH solution.