

第 126 回定例研究会 資料 I

2008年10月30日 水素エネルギー協会126回定例研究会
九州大学 伊都キャンパス



HYDROGENIUS研究の進捗と 水素脆化基本原理



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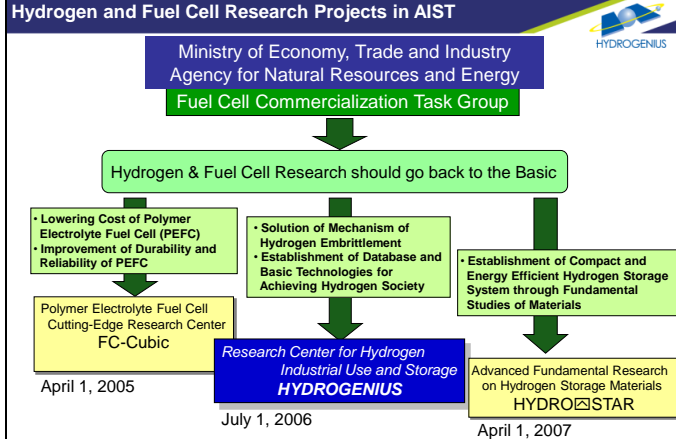
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Outline



- 1. INTRODUCTION : BACK GROUND OF HYDROGEN ENERGY TECHNOLOGY DEVELOPMENT IN JAPAN AND HYDROGENIUS PROJECT**
- 2. EFFECT OF HYDROGEN ON STRENGTH OF MATERIALS**
 - 2.1 Effect of Hydrogen on Static Strength of Steels
 - 2.2 Effect of Hydrogen on Fatigue Crack Growth
 - 2.2.1 Cr-Mo steel: JIS SCM435
 - 2.2.2 Effect of Hydrogen on Fatigue Crack Growth Behavior of Austenitic Stainless Steels
 - A. Hydrogen entry into austenitic stainless steels.
 - B. Effects of hydrogen and test frequency on fatigue crack growth.
 - C. Effects of hydrogen on striation formation.
 - D. What happens if non-diffusible hydrogen is removed by the special heat treatment?
- 3. CASE STUDIES**
 - 3.1 Dispenser Failure at the Hydrogen Station of EXPO 2005 in Nagoya
 - 3.2 Hydrogen Storage Cylinder at Kasumigaseki Hydrogen Station, Tokyo
- 4. CONCLUSIONS**

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Hydrogen and Fuel Cell Research Projects in AIST




Breakthrough of Technical Limit by Concentrating Research Resources

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NEDO - HYDROGENIUS Project

HYDROGENIUS

- Hydrogen Fatigue and Fracture Team
- Hydrogen Tribology Team
- Hydrogen Thermophysical Properties Team
- Hydrogen Simulation Team





Opening ceremony of HYDROGENIUS
Nov. 9, 2007

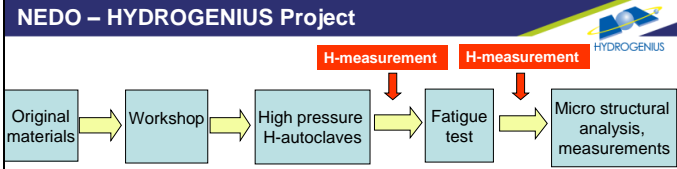
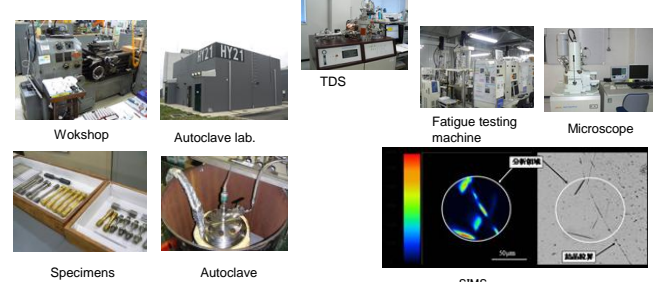


HYDROGENIUS lab. tour

- Experiments under 100 MPa high-pressure hydrogen gas environment
- High-sensitive and accurate analysis for solution of basic principles in hydrogen-material interaction problems



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NEDO - HYDROGENIUS Project

Specimens **Autoclave** **TDS** **Fatigue testing machine** **Microscope**

SIMS

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