

燃料電池

Vol.9
No.3

Winter 2010



The Journal of Fuel Cell Technology

巻頭言 継続的な研究開発は成功への道
—3つの念、理念、信念、執念が必要—

特集 水素・燃料電池自動車の開発状況

報告 Proton Exchange Membrane Fuel Cells 9報告
Solid Oxide Fuel Cells 11報告





トヨタ FCHV-adv (トヨタ自動車)

Toyota FCHV-adv (Toyota Motor)

P12 参照



日産 X-TRAIL FCV (日産自動車)

Nissan X-TRAIL FCV (Nissan Motor)

P19 参照



マツダ RX-8 ハイドロジェン RE
(マツダ)

Mazda RX-8 Hydrogen RE
(Mazda Motor)

P35 参照

フォード Edge FCEV (フォードモーター)

Ford Edge FCEV (Ford Motor)



P39 参照

メルセデスベンツBクラス F-Cell
(メルセデス・ベンツ日本)

Mercedes-Benz B-Class F-Cell
(Mercedes-Benz Japan)



P48 参照



P55 参照

洞爺湖サミットにおけるバス運行
(トヨタ自動車)

Bus Operation in Toyako Summit
(Toyota Motor)

水素エンジンバスによる公道走行
(東京都市大学)

Hydrogen fueled ICE Bus
(Tokyo City Univ.)



P59 参照



P69 参照

FCV3 によるオーストラリア縦断走行
(大阪産業大学)

Run through Australia by FCV3
(Osaka Sangyo Univ.)



千葉液化水素プラント（岩谷瓦斯）

Chiba Liquid Hydrogen Plant
(Iwatani)

P76 参照

SOFC と PEFC の
ハイブリッドシステム
(東京ガス、東京工業大学)

SOFC + PEFC Hybrid System
(Tokyo Gas and Tokyo
Institute of Technology)



P91 参照



P119 参照

マグ水素リアクター“MHR30”
(バイオコーク技研、Faxconn Technology)

MgH₂ Reactor “MHR30”
(Bio Coke Lab. and Faxconn Technology)

Dynario™による携帯電話の充電と
燃料カートリッジ (東芝)

Charging of Cellular Phone with DMFC
Charger “Dynario™” and Fuel Cartridge
(Toshiba)



P113 参照

The Journal of Fuel Cell Technology

Contents

Foreword

- The Effort of Continuous Researches Leads to The Success
-The Philosophy, Belief, and Persistency are Necessary -
H. Ikeda - Engineering Association for Fuel Cell & Hydrogen 1

Special Issue Development Status of Hydrogen-/Fuel Cell Vehicles

- Eco-friendly Vehicles Development Status Focussed on Fuel Cell Vehicle
M. Nishio - Japan Automobile Research Institute 6
- Development of TOYOTA Fuel Cell Hybrid Vehicle(FCHV)
H. Onaka - Toyota Motor Corp. 12
- Development of Fuel Cell Vehicle at Nissan
K. Ikezoe - Nissan Motor Co., Ltd. 18
- New Fuel Cell Stack for FCX Clarity
N. Saito - Honda R&D Co., Ltd. 26
- Development of Hydrogen Vehicle at Mazda
T. Saito and C. Iname - Mazda Motor Corp. 33
- Fuel Cell Research and Development at Ford Motor Company
S. Hirano - Ford Motor Company 38
- Fuel Cell Vehicle Development at Daimler
S. Murakami - Mercedes-Benz Japan Co., Ltd. 46
- Development of Fuel Cell Hybrid Bus(FCHV-BUS)
H. Onaka - Toyota Motor Corp. 52
- Development of Hydrogen Fuelled I.C Engine and Bus and its Operation
K. Yamane - Tokyo City University 56
- Process of Hydrogen Gas Generation and Development of Fuel Cell Vehicle at Osaka Sangyo University
O. Yamada, A. Saihara, H. Fujita, J. Oka, M. Murakami and M. Miyakubo - Osaka Sangyo University
J. Maruo - OSU Company 61
- Prediction of Future Trend of Vehicles for Environment
J. Suzuki - Suzukishokan Co., Ltd. 71

Topics

- The View in Outline of Liquid Hydrogen Plant for the First Time in East Japan and the Future.
A. Motojima and K. Iwaki - Iwatani Corp. 75
- Hydrogen Gas Sensor for Application to Fuel Cell Vehicle(FCV)
K. Tsukada - Okayama University
T. Yamamoto - Phenitec Semiconductor Corp.
T. Hondo - Sharp Takaya Electronics Industry Co., Ltd. 78
- Development of SOFC Technology for Lower Operation Temperature
Y. Fujishiro, T. Suzuki, T. Yamaguchi and M. Awano
National Institute of Advanced Industrial Science and Technology
Y. Funahashi and S. Shimizu - Fine Ceramic Research Association 83
- SOFC+PEFC Hybrid System
H. Yakabe and I. Kasama - Tokyo Gas Co., Ltd
K. Araki and Y. Yamazaki - Tokyo Institute of Technology 88

- **Development of Intermediate Temperature Type Fuel Cell**
Y. Mugikura - Central Research Institute of Electric Power Industry 94
- **Non-humidified Intermediate Temperature Fuel Cell Using Protic Ionic Liquid as Electrolyte**
T. Yasuda and M. Watanabe - Yokohama National University 99
- **Preparation and Properties of Cellulose Electrolyte Membranes for DMFC**
Y. Kasai - Aomori Prefectural Industrial Technology Research Center ... 105
- **Development Of Direct Methanol Fuel Cell Charger "Dynario™"**
Y. Sato - Toshiba Corp. ... 112
- **Production of Hydrogen Storage Material MgH₂ and its Applications**
H. Uesugi and T. Sugiyama - Bio Coke Lab. Co. Ltd.
I. Nakatsugawa and T. Ito - Foxconn Technology, Co. Ltd. ... 116
- **Development of Chemicals–Electricity Co-generation Reactor using Fuel Cell System**
T. Tagawa and H. Yamada - Nagoya University
Y. Miyata - Nagoya Municipal Industrial Research Institute ... 123
- **A Combined Method of Small-angle Neutron Scattering and Neutron Radiography to Visualize Water in an Operating Fuel Cell over a Wide Length Scale from Nano to Millimeters.**
S. Koizumi, H. Iwase, P. Ananda and D. Yamaguchi - Japan Atomic Energy Agency ... 129

Laboratory

- **Overview of the Fuel Cell Nanomaterials Center, University of Yamanashi**
T. Omata - University of Yamanashi ... 137

Report

- **Report on 113th Workshop**
-Visit to Ito Campus of Kyushu University and Fukuoka Hydrogen Town
T. Ishikawa - Tokyo Gas Co., Ltd. ... 141
- **Report on PEMFC 9 (B8 at The 216th ECS Meeting)**
S. Kotera - Asahi Glass Co., Ltd. /K. Ito, G. Inoue and M. Koyama - Kyushu University
M. Kawase and K. Miyazaki - Kyoto University/H. Ito - AIST
S. Tsushima - Tokyo Institute of Technology/Y. Takagi - Tokyo City University
M. Inaba - Doshisha University/K. Onda - Toyohashi University of Technology
H. Yamada - Nara National College of Technology/A. Ohma - Nissann Motor Co., Ltd.
T. Takeguchi - Hokkaido University/K. Ota, A. Ishihara - Yokohama National University ... 145
- **Report on Solid Oxide Fuel Cells 11 (B10 at the ECS 216th Meeting)**
H. Arai - NTT
F. Iguchi - Tokohu University
K. Kawahara and S.Suda - JFCC
Y. Tanaka, T. Horita and A. Momma - AIST
S. Nagata - FCDIC ... 177

Information

- S. Nagata - Fuel Cell Development Information Center ... 203

Postscript

- S. Nagata - Fuel Cell Development Information Center ... 206