

Poster presentations

- 1) Synthesis of novel sulfonated block graft copolyimides and their fuel cell properties
Y. Iizuka, G. Wang, and H. Kawakami (Tokyo Metropolitan University, Japan)
- 2) Effect of NH, OH, and COOH groups on the properties of polyimide ionomer membranes
J. Saito, M. Tanaka, K. Miyatake and M. Watanabe (University of Yamanashi, Japan)
- 3) Proton conductivities and gas permeabilities of sulfonated graft copolyimide membranes
K. Yamazaki and H. Kawakami (Tokyo Metropolitan University, Japan)
- 4) Side chain crosslinkable of fluorinated aromatic polyethers on transport properties
M. -H. Jeong, K. -S. Lee, U. Ko, and J. -S. Lee (Gwangju Institute of Science and Technology, Korea)
- 5) Characterization of the cross-linked poly(ether ether ketone) membranes with pendant sulfonic acid groups for fuel cell application
J. Kim and D. Kim (University of Sungkyunkwan, Korea)
- 6) The effect of proton conductivity of SPEEK composite membrane with organic compounds for DMFC
C. -H. Shin, S. -K. You, H. -J. Kim, D. -W. Shin and S. -G. Park (Chunbuk National University, Korea)
- 7) Robust wholly aromatic polymeric electrolytes membranes based on novel palladium-catalyzed coupling polymerization of thiophene derivatives and aryl dihalides via C-H bond activation process
S. Kawamitsu and I. Tomita (Tokyo Institute of Technology, Japan)
- 8) High performance polymer electrolyte membrane based on highly sulfonated poly(ether sulfone) with binaphthyl units
T. Nakagawa, K. Nakabayashi, T. Higashihara, and M. Ueda (Tokyo Institute of Technology, Japan)
- 9) Synthesis of highly sulfonated polymers for proton exchange membranes
T. Miyahara, T. Hayano, and S. Matsuno (Kaneka Corporation, Japan)
- 10) Degradation behavior of sulfonated polyimide and sulfonated polyether membranes in the mixed-gas exposure method
H. Hasegawa, Y. Nakagawa, Y. Sakiyama, H. Furuya*, T. Ida*, K. Miyatake*, H. Uchida*, and M. Watanabe* (Toray Research Center, Inc., Japan, *University of Yamanashi, Japan)

- 11) Synthesis of sulfonated polyimide / polybenzimidazole blend membrane
K. Suzuki and H. Kawakami (Tokyo Metropolitan University, Japan)
- 12) Poly(arylene ether)s containing superacid groups
T. Shimura, T. Mikami, K. Miyatake, and M. Watanabe (University of Yamanashi, Japan)
- 13) Phosphoric acid-doped SDF-F/poly(VI-CO-MPS)/PTFE membrane for high temperature proton exchange membrane fuel cells
J. Lee^a, H. -R. Jeong^b, Y. -J. Jeong^b, C. -W. Yi^b, and K. Kim^a (^aKorea University, ^bSungshin Women's University, Korea)
- 14) Properties of PFSA / SiO₂ composite membrane for low humidity operation polymer electrolyte fuel cell
N. Inoue, M. Uchida, H. Uchida, and M. Watanabe (University of Yamanashi, Japan)
- 15) In-situ deposition of TiO₂ nanoparticles in nafion membranes by soft solution process
T. Hasegawa and M. Mizuhata (Kobe University, Japan)
- 16) HPW/silica inorganic membranes based on mesoporous silica for fuel cells
J. Zeng, and SP.Jiang (Nanyang Technological University, Singapore)
- 17) Study of radical-induced degradation of polymer electrolyte membrane for fuel cell
R. Uegaki, Y. Akiyama, S. Nishijima Y. Honda, and S. Tojo (Osaka University, Japan)
- 18) Measurement of the ion conductivity of alkaline layered double hydroxides in a water vapor pressure up to 1.5 MPa (200 °C)
K. Nakawatari, H. Kim, and Y. Yamazaki (Tokyo Institute of Technology, Japan)
- 19) Electronic structure analysis of Pt/Au/C core-shell catalysts by *in situ* XAFS measurement and durability
Y. Kobayashi, K. Kanda, H. Aoki, and Y. Uchimoto (Kyoto University, Japan)
- 20) Dissolution-resistant oxygen reduction catalysts
Gustavo E. Ramirez-Caballero, Perla B. Balbuena (Texas A&M University, USA)
- 21) Arrangement of Pt nanocrystals with controlled distances to assess electrode catalysis for fuel cell
Y. Ishino, S. Okada, K. Miyabayashi, and M. Miyake (Japan Advanced Institute of Science and Technology, Japan)

- 22) Almost ideal DQE for imaging plates by geometric distortion correction using reflected light signal
P. Bele (Technical University Munich, Germany)
- 23) Preparation and characterization of novel monodispersed Pt nanoparticles-loaded carbon black catalysts
A. Taguchi, E. Higuchi, and H. Inoue (Osaka Prefecture University, Japan)
- 24) Pulsed electrodeposition of low loading Pt-Co nanoparticles and its application as PEMFC cathode catalyst
S. Woo, I. Kim, S. Bong, and H. Kim (Seoul National University, Korea)
- 25) In-situ XAFS Analysis of Pt/Pd/C core-shell catalysts during oxygen reduction reaction and durability
K. Kanda, H. Aoki, Y. Kobayashi, and Y. Uchimoto (Kyoto University, Japan)
- 26) Catalytic activity for oxygen reduction reaction of partially oxidized Zr carbonitride – Effect of carbon black mixing
K. Ukita, A. Ishihara, Y. Ohgi, K. Matsuzawa, S. Mitsushima, and K. Ota (Yokohama National University, Japan)
- 27) The properties of MnO₂ nanoparticle prepared by using pulse current in fuel cell
J. –H. Choi, J. –J. Yang, *J. –S. Kim, **H. –J. Kim, and S. –G. Park (Chunbuk National University, *Techwin. Co. Ltd., **pureEchem, Co. Ltd., Korea)
- 28) *In situ* XAFS studies on oxygen reaction reduction of Pt/M/C(M=Au, Pd, Ru) core-shell catalysts
H. Aoki, Y. Yobayashi, K. Kanda, and Y. Uchimoto (Kyoto University, Japan)
- 29) Octahedral platinum-palladium alloy nanoparticles for oxygen reduction reaction
Y. –W. Lee, A-Ra Ko, S. –B. Han, H. –S. Kim, D. –Y. Kim, S. –J. Kim, and K. –W. Park (Soongsil University, Korea)
- 30) Oxygen reduction reaction activity of Pt nanoparticles-loaded carbon black catalysts prepared with Pt-carbonyl cluster anions
K. Hayashi, E. Higuchi, and H. Inoue (Osaka Prefecture University, Japan)
- 31) Control of particle size of Pt-based catalysts supported on carbon by nanocapsule method
K. Okaya, H. Yano, H. Uchida, and M. Watanabe (University of Yamanashi, Japan)

- 32) Application of ATR-SEIRA spectroscopy for detecting reaction intermediates of ORR at Au/Ti film electrodes in acidic solution
K. Nomura, N. Ohta, and I. Yagi (Fuel Cell Cutting-Edge Research Center Technology Research Association, Japan)
- 33) Measurement of hydrogen peroxide production at Pt/electrolyte interface using Pt-microelectrode system
S. Shironita, T. Sakai, and M. Umeda (Nagaoka University of Technology, Japan)
- 34) Separation of oxygen reduction reaction and surface oxidation / reduction currents on Pt/C using rotating ring disk electrode
Y. Fujita, Y. Nagahara*, K. Matsuzawa, S. Mitsushima, S. Sugawara*, K. Ota, and K. Shinohara (Yokohama National University, *Nissan Motor Co., Ltd., Japan)
- 35) Effect of impurity mixtures in the hydrogen on polymer electrolyte fuel cell performance
Y. Matsuda, Y. Hashimasa, D. Imamura, and M. Akai (Japan Automobile Research Institute, Japan)
- 36) Impedance analysis for detection of deterioration level on polymer electrolyte fuel cells
H. Nara, T. Momma, and T. Osaka (Waseda University, Japan)
- 37) A theoretical investigation of electrocatalysts for polymer electrolyte membrane fuel cell (PEMFC)
P. C. Jennings, B. G. Pollet, L. E. Macaskie, and R. L. Johnston (University of Birmingham, UK)
- 38) Theoretical aspect of electronic structure of catalysts for cathode of PEFC
D. Kim, H. Kobayashi, R. Miura, A. Suzuki, H. Tsuboi, N. Hatakeyama, A. Endou, H. Takaba, M. Kubo, A. Miyamoto (Tohoku University, Japan)
- 39) Simulation of the oxygen reduction reaction on platinum-based alloy catalysts for fuel cells using the kinetic monte carlo method and density functional theory
R. Callejas-Tovar and P. B. Balbuena (Texas A&M University, USA)
- 40) Investigation of electron transfer between enzyme and electrode for biofuel cell by computational chemistry
H. Kobayashi, D. Kim, R. Nagumo, R. Miura, A. Suzuki, H. Tsuboi, N. Hatakeyama, A. Endou, H. Takaba, M. Kubo, and A. Miyamoto (Tohoku University, Japan)

- 41) Effect of surface states on co-tolerant H₂ oxidation rates at Pt₂Ru₃/C anode catalysts analyzed by ATR-FTIR
T. Sato, K. Okaya, H. Yano, K. Kunimatsu, M. Watanabe, and H. Uchida (University of Yamanashi, Japan)
- 42) Mesoporous PdCo nanostructure synthesized by electrodeposition and dealloying for oxygen reduction reaction
T. Hayashi, T. Momma, and T. Osaka (Waseda University, Japan)
- 43) Application of oxide nanosheets to PEFC electrocatalysts
T. Saida, N. Ogiwara, Y. Takasu, and W. Sugimoto (Shinshu University, Japan)
- 44) Platinum-tungsten carbide and oxide electrodes for methanol electrooxidation
A-R. Ko, Y. -W. Lee, S. -B. Han, D. -Y. Kim, S. -J. Kim, K. -W. Park (Soongsil University, Korea)
- 45) Voltametric investigations on the electrodes of DMFC and their impact on the cell performance
A. Mehmood, J. Prabhuram, H. Y. Ha (Korea Institute of Science and Technology, Korea)
- 46) In-situ ATR-FTIRAS study of methanol adsorption/oxidation on a highly dispersed Pt/C and PtRu/C electrodes
H. Hanawa, K. Kunimatsu, H. Uchida, and M. Watanabe (University of Yamanashi, Japan)
- 47) Semi-interpenetrating polymer network (SEMI-IPN) membranes composed of organosiloxane based hybrid network and SPEEK for DMFC
D. X. Luu and D. Kim (Sungkyunkwan University, Korea)
- 48) Electrode designs for mixed-reactant direct methanol fuel cells
J. -H. Choi (Kyungil University, Korea)
- 49) Impedance based mechanistic understanding of formic acid oxidation on Pd/C and synthesis of bimetallic Pd-Au nanoparticles for direct formic acid fuel cell application
Y. Suo and I-M. Hsing (The Hong Kong University of Science and Technology, Hong Kong)
- 50) Power generation characteristic of the passive direct formic acid fuel cell with Pd catalyst
S. Hirano, T. Tujiguchi, and N. Nakagawa (Gunma University, Japan)
- 51) Development of a direct methanol fuel cell for in-situ NMR diagnosis
M. S. Um, H. -I. Joh, K. S. Han, O. H. Han, S.-Kil Kim, H. Y. Ha (Korea Institute of Science and Technology, Korea)

- 52) Effect of the impurities in the crude bio-methanol on the performance of the direct methanol fuel cell
T. Tsujiguchi, T. Furukawa, and N. Nakagawa (Gunma University, Japan)
- 53) Fabrication and characterization of NiOOH electrodes for an alkaline electrolyte of LDH
Y. Sasaki, H. Kim, and Y. Yamazaki (Tokyo Institute of Technology, Japan)
- 54) Relationship of catalyst effectiveness to the state of the catalyst layer in polymer electrolyte fuel cells
M. S. Lee, M. Uchida, H. Uchida, and M. Watanabe (University of Yamanashi, Japan)
- 55) Bio-engineered catalytic layers for PEM fuel cells
J. M. Courtney^a, A. N. Tsoligkas^a, K. Deplanche^b, L. E. Macaskie^b, and B. G. Pollet^a (^aCentre for Hydrogen and Fuel Cell Research, ^bUniversity of Birmingham, UK)
- 56) Evaluation of cell performance using polyimide ionomer as binder of catalyst layer
T. Omata, M. Tanaka, K. Miyatake, M. Uchida, H. Uchida and M. Watanabe (University of Yamanashi, Japan)
- 57) Fabrication of hydrophobic gas diffusion layer with high conductivity by electrophoretic deposition
M. G. Jeong, H. Jeon, H. M. Lee, J. M. Lee, T. H. Cho, and W. K. Choi (Dankook University, Korea)
- 58) AC impedance analysis for understanding of MEA degradation
A. Hasegawa, H. Nara, T. Momma, and T. Osaka (Waseda University, Japan)
- 59) Water repellent coating on gas diffusion layer by PTFE emulsions with different size in PTFE particle
H. Jeon, M. G. Jeong, H. M. Lee, J. M. Lee, T. H. Cho, and W. K. Choi (Dankook University, Korea)
- 60) Simultaneous visualization of oxygen partial pressure and water blockages in an operating triple-serpentine PEFC
K. Takada,^a Y. Ishigami,^a J. Inukai,^a Y. Nagumo,^b H. Takano,^c H. Nishide,^d and M. Watanabe^a (^aUniversity of Yamanashi, ^bShimadzu Co Ltd., ^cFuji Electric Holdings, ^dWaseda University, Japan)
- 61) Computational fluid dynamics modeling of catalyst agglomerate in proton exchange membrane fuel cells
C. -Y. Jung, and S. -C. Yi (Hanyang University, Korea)

- 62) Fluorescent aromatic amine/polymer coatings for optical CO₂ detection
T. Shibano,¹⁾ T.Suga,¹⁾ H.Nishide,¹⁾ and M.Watanabe²⁾ (¹⁾Waseda University, ²⁾University of Yamanashi, Japan)
- 63) CO₂ visualization monitoring degradation of carbon supports during start-up and shut-down cycles
Y. Ishigami,^a I. Maeda,^b T. Shibano,^b K. Takada,^a T. Suga,^b J. Inukai,^a M. Uchida,^a Y. Nagumo,^c H. Nishide,^b and M. Watanabe^a (^aUniversity of Yamanashi, ^bWaseda University, ^cShimadzu Co Ltd., Japan)
- 64) Hydrogen fuel cell hybrid vehicle (HFCHV) demonstration on university of birmingham campus
A. Dhir, I. Staffell, K. Kendall and B. G. Pollet (University of Birmingham, UK)
- 65) Graphene-metals coating on steel substrate by electroless deposition
A. Rani^{a,c}, M. R. Debnath^{b,c}, P. Min^a, and E. Fleury^b (^{a,b} Korea Institute of Science and Technology, ^cUniversity of Science and technology, Korea)
- 66) High temperature water-gas shift reaction over mesopous Ni-Fe/CeO₂-ZrO₂ catalyst prepared by hard-template method
K. Watanabe, T. Miyao, K. Higashiyama, H. Yamashita, and M. Watanabe (University of Yamanashi, Japan)
- 67) Ethanol Electro-oxidation on Pt/Natural Zeolite
Haryo Satriya Oktaviano and Keiko Waki (Tokyo Institute of Technology, Japan)