

Masaaki KAKIMOTO, Prof.

Department of Organic and Polymeric Materials

1. Main Research Result

- 1) Non platinum catalysts for fuel cell were developed using carbon materials.
- 2) Oxidation of alcohols using carbon alloy catalysts: Benzaldehyde was selectively obtained from benzyl alcohol by aerobic oxidation in the presence of carbon alloy catalysts and nitric acid.

2. List of Publications

- 1) Selective aerobic oxidation of benzylic alcohols catalyzed by carbon-based catalysts: a nonmetallic oxidation system
Yongbo Kuang, Nazrul M. Islam, Yuta Nabae, Teruaki Hayakawa, and Masa-aki Kakimoto
Angew. Chem. Int. Ed., 49, 436-440 (2010)
- 2) カーボンアロイ触媒の作製法 ―ポリマーから見た設計―
豊開真之, 柿本雅明
「白金代替カーボンアロイ触媒」, シーエムシー出版, 40-52 (2010)
- 3) 酸化反応触媒 ―カーボンアロイ触媒によるアルコールの酸化反応―
柿本雅明, 早川晃鏡
「白金代替カーボンアロイ触媒」, シーエムシー出版, 163-167 (2010)
- 4) The role of Fe species in the pyrolysis of Fe phthalocyanine and phenolic resin for preparation of carbon-based cathode catalysts
Yuta Nabae, Shogo Moriya, Katsuyuki Matsubayashi, Stephen M. Lyth, Michal Malon, Libin Wu, Nazrul M. Islam, Yuka Koshigoe, Shigeki Kuroki, Masa-aki Kakimoto, Seizo Miyata, Jun-ichi Ozaki
Carbon, 48, 2613-2624 (2010)
- 5) Development of a highly oriented poly-biphenylenebisoxazole fiber obtained via a precursor polymer spun from a liquid crystalline aqueous solution
Masayuki Chokai, Dennis Wilbers, Bunsow Nagasaka, Hiroki Kuwahara, Ton de Weijer, Enno Klop, Teruaki Hayakawa, and Masa-aki Kakimoto

Polym. J., 41, 679-684 (2009)

- 6) Efficient synthesis of block copolymers bearing donor-acceptor chromophores for second-order nonlinear optical application
Yongrong Li, Kazuma Tsubo, Tsuyoshi Michinobu, Yoshihito Ishida, Tomoyasu Hirai, Teruaki Hayakawa, and Masa-aki Kakimoto
J. Photopolym. Sci. Technol., 23, 337-342 (2010)
- 7) Preparation of carbon alloy catalysts from a polyhydroxyamide with iron phthalocyanine via a poly-biphenylene bisoxazole composite
Masayuki Chokai, Masataka Taniguchi, Shogo Moriya, Katsuyuki Matsubayashi, Tsuyoshi Shinoda, Yuta Nabae, Shigeki Kuroki, Teruaki Hayakawa, Masa-aki Kakimoto, Jun-ichi Ozaki, and Seizo Miyata
J. Photopolym. Sci. Technol., 23, 459-464 (2010)
- 8) A nitric acid-assisted carbon-catalyzed oxidation system with nitroxide radical cocatalysts as an efficient and green protocol for selective aerobic oxidation of alcohols
Yongbo Kuang, Hodaka Rokubuichi, Yuta Nabae, Teruaki Hayakawa, and Masa-aki Kakimoto
Adv. Synth. Catal., 352, 2635-2642 (2010)
- 9) Preparation of carbon alloy catalysts for polymer electrolyte fuel cells from nitrogen-containing rigid-rod polymers
Masayuki Chokai, Masataka Taniguchi, Shogo Moriya, Katsuyuki Matsubayashi, Tsuyoshi Shinoda, Yuta Nabae, Shigeki Kuroki, Teruaki Hayakawa, Masa-aki Kakimoto, Jun-ichi Ozaki, Seizo Miyata
J. Power Sources, 195, 5947-5951 (2010)
- 10) Pt-free cathode catalysts prepared via multi-step pyrolysis of Fe phthalocyanine and phenolic resin for fuel cells
Libin Wu, Yuta Nabae, Shogo Moriya, Katsuyuki Matsubayashi, Nazrul M. Islam, Shigeki Kuroki, Masa-aki Kakimoto, Jun-ichi Ozaki and Seizo Miyata
Chem. Commun., 46, 6377-6379 (2010).

3. Conference Presentations (International & Domestic)

International:

Oral Presentation: 2

Poster Presentation: 5

Domestic:

Oral Presentation: 2

Poster Presentation: 11

4. Patent Application

5 Application

5. 新聞報道等掲載

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