

平成23年度 研究業績

浅尾直樹 (東北大学原子分子材料科学高等研究機構、A01班 公募班員)

1. 発表論文等 (査読付き論文, 著書, 総説等の発表状況)

- (1) Aerobic oxidation of alcohols in the liquid phase with nanoporous gold catalysts
Asao, N.*; Hatakeyama, N.; Menggenbateer, Minato, T.; Ito, E.; Hara, M.; Kim, Y.; Yamamoto, Y.*; Chen, M.; Zhang, W.; Inoue, A. *Chem. Commun.* **2012**, 48, 4540-4542.
- (2) Donor-acceptor Dyes Incorporating Stable Dibenzosilole π -Conjugated Spacer for Dye-sensitized Solar Cells
Akhtaruzzaman, Md.*; Seya, Y.; Asao, N.; Islam, A.; Kwon, E.; El-Shafei, A.; Han, L.; Yamamoto, Y.* *J. Mater. Chem.* in press.
- (3) Nanoporous Gold-Catalyzed [4+2] Benzannulation between *ortho*-Alkynylbenzaldehydes and Alkynes
Asao, N.*; Menggenbateer, Seya, Y.; Yamamoto, Y.*; Chen, M.; Zhang, W.; Inoue, A. *Synlett* **2012**, 23, 66-69.
- (4) A novel metal-free panchromatic TiO₂ sensitizer based on a phenylenevinylene-conjugated unit and an indoline derivative for highly efficient dye-sensitized solar cells
Akhtaruzzaman, Md.*; Islam, A.; Yang, F.; Asao, N.; Kwon, E.; Singh, S. P.; Han, L.; Yamamoto, Y.* *Chem. Commun.* **2011**, 47, 12400-12402.
- (5) Reusable and Sustainable Nanostructured Skeleton Catalyst: Heck Reaction with Nanoporous Metallic Pd (PdNPore) as a Support, Stabilizer and Ligand Free Catalyst
Kaneko, T.; Tanaka, S.; Asao, N.*; Yamamoto, Y.*; Chen, M.; Zhang, W.; Inoue, A. *Adv. Synth. Catal.* **2011**, 353, 2927-2932.
- (6) Formation and properties of Au-based nanograined metallic glasses
Chen, N.; Frank, R.; Asao, N.; Louzguine-Luzgin, D. V.*; Sharma, P.; Wang, J. Q.; Xie, G. Q.; Ishikawa, Y.; Hatakeyama, N.; Lin, Y. C.; Esashi, M.; Yamamoto, Y.; Inoue, A.* *Acta Mater.* **2011**, 59, 6433-6440.
- (7) Gold-catalyzed alkylation of silyl enol ethers with *ortho*-alkynylbenzoic acid esters
Aikawa, H.; Kaneko, T.; Asao, N.*; Yamamoto, Y. *Beilstein J. Org. Chem.* **2011**, 7, 648-652.
- (8) A nanostructured skeleton catalyst: Suzuki-coupling with a reusable and sustainable nanoporous metallic glass Pd-catalyst
Tanaka, S.; Kaneko, T.; Asao, N.*; Yamamoto, Y.*; Chen, M.; Zhang, W.; Inoue, A. *Chem. Commun.* **2011**, 47, 5985-5987.

2. 学会発表等（国内外の招待講演および国際会議での発表状況）

(1) Aerobic Oxidation of Alcohols Catalyzed by Nanoporous Gold

Hatakeyama, N.; Menggenbateer; Asao, N.; Yamamoto, Y.; Chen, M.; Zhang, W.; Inoue, A. 16th IUPAC International Symposium on Organometallic Chemistry Directed Towards Organic Synthesis (OMCOS 16), Shanghai, China, 2011.7.24-28（ポスター発表）.

(2) Nanoporous gold as a catalyst for the oxidation of organosilanes

Ishikawa, Y.; Hatakeyama, N.; Menggenbateer; Asao, N.; Yamamoto, Y.; Chen, M.; Zhang, W.; Inoue, A. 16th IUPAC International Symposium on Organometallic Chemistry Directed Towards Organic Synthesis (OMCOS 16), Shanghai, China, 2011.7.24-28（ポスター発表）.

(3) Nanostructured Skeleton Catalyst: Suzuki-coupling and Heck Reaction with Nanoporous Pd-catalyst as a Non-supported Catalyst

Tanaka, S.; Kaneko, T.; Asao, N.; Yamamoto, Y.; Chen, M.; Zhang, W.; Inoue, A. 16th IUPAC International Symposium on Organometallic Chemistry Directed Towards Organic Synthesis (OMCOS 16), Shanghai, China, 2011.7.24-28（ポスター発表）.

(4) Nanoporous Gold Catalyzed Benzannulation Reaction

Menggenbateer; Asao, N.; Yamamoto, Y.; Chen, M.; Zhang, W.; Inoue, A. 16th IUPAC International Symposium on Organometallic Chemistry Directed Towards Organic Synthesis (OMCOS 16), Shanghai, China, 2011.7.24-28（ポスター発表）.

(5) Nanoporous Metallic Materials as Effective Green Catalysts for Molecular Transformations

Asao, N. 14th Asian Chemical Congress 2011 (14 ACC), Bangkok, Thailand, 2011.9.5-8（招待講演）.

(6) Integrated Aerobic Oxidation of Alcohols Catalyzed by Nanoporous Gold

Asao, N.; Hatakeyama, N.; Yamamoto, Y. The Seventh International Symposium on Integrated Synthesis (ISIS-7), Kobe, Japan, 2011.10.9-10（ポスター発表）.

(7) Nanoporous Metals as Effective Catalysts for Molecular Transformations

Asao, N. Tateshina Conference on Organic Chemistry 2011, Tateshina, Japan, 2011.11.11-13（ポスター発表）.

(8) Molecular transformation with nanoporous materials skeleton catalysts

Asao, N. 4th French Research Organizations-Tohoku University Joint Workshop on Frontier Materials and Processes (Frontier 2011), Sendai, Japan, 2011.12.4-7（招待講演）.

(9) Atomic defect control on titanium dioxide surface by scanning tunneling microscopy

Minato, T.; Pang, C.-L.; Kajita, S.; Asao, N.; Yamamoto, Y.; Nakayama, T.; Kawai, M.; Kim, Y. International Symposium on Surface Science (ISSS-6), Tokyo, Japan,

2011.12.11-15 (ポスター発表) .

(10) Nanoporous materials as skeleton catalysts for molecular transformations

Asao, N. UCSB ICMR/CNSI and Tohoku University Joint Workshop, Santa Barbara, USA, 2012.1.10-12 (招待講演) .

(11) Aerobic Oxidation of Alcohols in the Liquid Phase with Nanoporous Gold Catalysts

Asao, N.; Hatakeyama, N.; Minato, T.; Yamamoto, Y.; Chen, M.; Zhang, W.; Inoue, The 2012 WPI-AIMR Annual Workshop, Sendai, Japan, 2012. 2.20-23 (ポスター発表) .

(12) Nanoporous Palladium as a Reusable Skeleton Catalyst for Suzuki Coupling and Heck Reaction

Tanaka, S.; Kaneko, T.; Asao, N.; Yamamoto, Y.; Chen, M.; Zhang, W.; Inoue, A. The 2012 WPI-AIMR Annual Workshop, Sendai, Japan, 2012. 2.20-23 (ポスター発表) .

(13) Mechanism of organic chemical reactions on nano-porous gold

Minato, T.; Ito, E.; Ishikawa, Y.; Hatakeyama, N.; Hara, M.; Kim, Y.; Asao, N.; Yamamoto, Y. Towards Reality in Nanoscale Materials V, Levi, Finland, 2012.2.20-22 (ポスター発表) .

3. 特許

4. 学会・シンポジウム等の開催状況

5. 受賞等

6. 新聞報道等

(1) Suzuki-Miyaura Coupling with Nanoporous Metallic Glass Pd

Synfacts **2011**; 2011: 0921-0921

(2) The Heck Reaction with Nanoporous Metallic Glass Pd

Synfacts **2012**; 8: 0230-0230

(3) [4+2] Benzannulation with a Nanoporous Gold Catalysts

Synfacts **2012**; 8: 0460-0460

7. 国民との科学・技術対話

8. 領域内の共同研究の準備・実施状況とその成果