

平成22年度 研究業績

垣内史敏 (慶應義塾大学理工学部、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) Rhodium-Catalyzed Anti-Markovnikov Intermolecular Hydroalkoxylation of Terminal Acetylenes Intermolecular Hydroalkoxylation of Terminal Acetylenes
Kondo, M.; Kochi, T.; Kakiuchi, F.* *J. Am. Chem. Soc.* **2011**, *133*, 32-34.
- (2) Convenient Synthesis of Dibenzo[*a,h*]anthracenes and Picones via C-H Arylation of Acetophenones with Arenediboronates
Kitazawa, K.; Kochi, T.; Nitani, M.; Ie, Y.; Aso, Y.; Kakiuchi, F.* *Chem. Lett.* **2011**, *40*, 300-302.
- (3) Room-Temperature Regioselective C-H/Olefin Coupling of Aromatic Ketones Using an Activated Ruthenium Catalyst with a Carbonyl Ligand and Structural Elucidation of Key Intermediates
Kakiuchi, F.*; Kochi, T.; Mizushima, E.; Murai, S. *J. Am. Chem. Soc.* **2010**, *132*, 17741-17750.
- (4) Control of Product Selectivity by a Styrene Additive in Ruthenium-Catalyzed C-H Arylation
Hiroshima, S.; Matsumura, D.; Kochi, T.; Kakiuchi, F.* *Org. Lett.* **2010**, *12*, 5318-5321.
- (5) RuH₂(CO)(PPh₃)₃-Catalyzed Arylation of Aromatic Esters Using Arylboronates via C-H Bond Cleavages
Kitazawa, K.; Kotani, M.; Kochi, T.; Langeloth, M.; Kakiuchi, F.* *J. Organomet. Chem.* **2010**, *695*, 1163-1167.
- (6) 新展開を見せる C-H 活性化研究 — 勃興と転機, そして”C-H functionalization”へ
垣内史敏*, 化学, **2011**, *66* (3), 25-29.

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) Catalytic Functionalization of Aromatic Compounds *via* Carbon-Hydrogen Bond Cleavage and Its Applications
Kakiuchi, F. 14th SANKEN International Symposium 2011, 大津, 2011.1.25-26 (招待講演).
- (2) 不活性炭素結合と有機ホウ素化合物とのクロスカップリング反応
垣内史敏, 第3回グリーン元素科学シンポジウム, 岡山, 2010.12.10 (招待講演).

- (3) Palladium-Catalyzed Aromatic ortho-Selective C-H Functionalization by Means of Electrochemical Oxidation
Aiso, H.; Kochi, T.; Mutsutani, H.; Nishiyama, S.; Kakiuchi, F. The 2010 International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA, 2010.12.15-20 (ポスター発表).
- (4) Ruthenium-catalyzed Regio-selective Introduction of Carbonyl Functionality on Aromatic Ring via C-H bond Cleavage
Kakiuchi, F. Pacifichem2010, The 2010 International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA, 2010.12.15-20 (招待講演).
- (5) Carbon-Nitrogen Bond Cleavage in *o*-Acylanilines on Ruthenium Complexes and Its Relevance to Catalytic Coupling Reactions with Organoboronates
Koreeda, T.; Kochi, T.; Kakiuchi, F. The 2010 International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA, 2010.12.15-20 (ポスター発表).
- (6) anti-Markovnikov Hydroamination of Arylacetylenes Catalyzed by 8-Quinolinolato Rhodium Complex
Sakai, K.; Kochi, T.; Kakiuchi, F. The 2010 International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA, 2010.12.15-20 (ポスター発表).
- (7) Syntheses of multi-substituted anthracenes using ruthenium-catalyzed regioselective C-H bond arylation
Kitazawa, K.; Kochi, T.; Kakiuchi, F. The 2010 International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA, 2010.12.15-20 (ポスター発表).
- (8) Convenient Synthesis of Multi-alkylated Acenes by means of $\text{RuH}_2(\text{CO})(\text{PPh}_3)_3$ -Catalyzed C-H Bonds Alkylation
Matsumura, D.; Kochi, T.; Kakiuchi, F. The 2010 International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA, 2010.12.15-20 (ポスター発表).
- (9) Ruthenium-Catalyzed Regioselective Functionalization of Aromatic C-H Bonds Using Alkenes Bearing Oxygen Leaving Groups
Ogiwara, Y.; Tamura, M.; Kochi, T.; Kakiuchi, F. The 2010 International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA, 2010.12.15-20 (ポスター発表).

- (10) Rhodium-Catalyzed Synthesis of Enol Ethers by anti-Markovnikov Addition of Alcohols to Terminal Arylacetylenes
Kondo, M.; Kohi, T.; Kakiuchi, F. The 2010 International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA, 2010.12.15-20 (ポスター発表).
- (11) Chain-Walking Strategy for Synthesis of Cyclic Organic Molecules: Palladium-Catalyzed Cycloisomerization of 1,n-Dienes
Kochi, T.; Aoyama, Y.; Kawasaki, J.; Hamasaki, T.; Kakiuchi, F. The 2010 International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA, 2010.12.15-20 (口頭発表).
- (12) Palladium-catalyzed ortho-Selective C-H Halogenation of Aromatic Compounds by Means of Electrochemical Oxidation
Aiso, H.; Kochi, T.; Kakiuchi, F. The First Symposium on Electroorganic Chemistry by Young Researchers, Keio University, Yokohama, Japan, 2010.11.27 (口頭発表).
- (13) Palladium-Catalyzed Regioselective C-H Halogenation of Arylpyridines by Means of Electrochemical Oxidation
Mutsutani, H.; Aiso, H.; Kobayashi, N.; Kochi, T.; Kakiuchi, F. China-Japan Symposium on Catalytic Organic Synthesis, Tianjin, China 2010.9.24-26 (口頭発表).
- (14) Mechanistic Studies of Ruthenium-Catalyzed Cross Coupling of *ortho*-Acyylanilines with Arylboronic Acid Esters
Kakiuchi, F. 24th International Conference on Organometallic Chemistry, Taipei, Taiwan, 2010.7.18-23

3. 特許

- (1) 芳香族化合物及びその製造法
住友化学株式会社, 学校法人慶應義塾, 垣内史敏
国際出願 WO 2010/084960, PCT/JP2010/050822, 2010.7.29
- (2) 電気分解を利用した芳香族ハロゲン化合物の製造方法
学校法人慶應義塾, 垣内史敏
国際出願 WO 2010/104028, PCT/JP2010/053766, 2010.9.16

4. 学会・シンポジウム等の開催状況

なし

5. 受賞等

なし

6. 新聞報道等

なし

7. 領域内の共同研究の準備・実施状況とその成果

なし

8. その他特記事項

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