

平成22年度 研究業績

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1. 発表論文等（査読付き論文，著書，総説等の発表状況）

- (1) Nano-Sized to Giant Conjugated Macrocycles: New Concepts and Versatile Applications
Iyoda, M.; Yamakawa, J.; Rahman, M. J. *Angew. Chem. Int. Ed.* in press.
- (2) Probing Coherence in Synthetic Cyclic Light-Harvesting Pigments
Donehue, J. E.; Varnavski, O. P.; Cemborski, R.; Iyoda, M.; Goodson III, T.* *J. Am. Chem. Soc.* in press.
- (3) Self-assembly and nanostructure formation of amphiphilic 4,5-bis(2-pyridylethynyl)-tetrathiafulvalenes
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- (4) McMurry Coupling of Diformyldithienylacetylene: Synthesis of [24]-, [36]-, and [48]annulenes Composed of Thiophene, Acetylene, and Ethylene Units
Iyoda, M.*; Huang, P.; Nishiuchi, T.; Takase, M.; Nishinaga, T. *Heterocycles* in press.
- (5) Synthesis and electrical conductivity of perchlorate-doped TTF diamide nanofibers
Ahn, S.; Kim, Y.; Beak, S.; Ishimoto, S.; Enozawa, H.; Isomura, E.; Hasegawa, M.; Iyoda, M.*; Park, Y.* *J. Mater. Chem.* **2010**, 20(48), 10817-10823.
- (6) Biradical Character of Linear π -Conjugated Oligomer Dications Composed of Thiophene, Pyrrole and Methylthio End-Capping Units
Nishinaga, T.; Tatenno, M.; Fujii, M.; Fujita, W.; Takase, M.; Iyoda, M. *Org. Lett.* **2010**, 12(23), 5374-5377.
- (7) Shape-controllable gold nanocrystallization using an amphiphilic polythiophene
Minami, T.; Nishiyabu, R.; Iyoda, M.; Kubo, Y.* *Chem. Commun.* **2010**, 46(45), 8603-8605.
- (8) Star-Shaped Oligothiophenes with Unique Photophysical Properties and Nanostructures
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- (9) An Efficient Synthesis of Chiral Isoquinuclidines by Diels-Alder Reaction Using Lewis Acid Catalyst
Hirama, M.; Kato, Y.; Seki, C.; Nakano, H.; Takeshita, M.; Oshikiri, N.; Iyoda, M.; Matsuyama H.* *Tetrahedron* **2010**, 66(38), 7618-7624.
- (10) Conducting supramolecular nanofibers and nanorods
Hasegawa, M.; Iyoda, M.* *Chem. Soc. Rev.* **2010**, 39(7), 2420-2427.

- (11) Synthesis and Properties of Thienylene-Ethynylene-Tetrathiafulvalene Oligomers
Hasegawa, M.; Hara, K.; Tokuyama, K.; Iyoda, M.* *Phosphorus, Sulfur and Silicon* **2010**, *185*, 1061-1067.
- (12) Synthesis and Properties of Octithiophene Dication Sterically Segregated by Annelation with Bicyclo[2.2.2]octene Units
Nishinaga, T.; Yamazaki, D.; Tateno, M.; Iyoda, M.; Komatsu K. *Materials* **2010**, *3*(3), 2037-2052.
- (13) Fully Conjugated Macrocycles Composed of Thiophenes, Acetylenes, and Ethylenes
Iyoda, M.* *Pure Appl. Chem.* **2010**, *82*(4), 831-841.
- (14) Structural, electronic and magnetic properties of Cu(II) complexes of 2-substituted tropones bearing ferrocenyl group at 5-position
Nishinaga, T.*; Aono, T.; Isomura, E.; Watanabe, S.; Miyake, Y.; Miyazaki, A.; Enoki, T.; Miyasaka, H.; Otani, H.; Iyoda, M.* *Dalton Trans.* **2010**, *39*(9), 2293-2300.
- (15) Synthesis and π -Amphoteric Properties of Tris(tetrathiafulvaneno)hexadehydro-[12]annulene
Hara, K.; Hasegawa, M.; Kuwatani, Y.; Enozawa, H.; Iyoda, M.* *Heterocycles* **2010**, *80*(2), 909-915.
- (16) Recent Studies on the Aromaticity and Antiaromaticity of Planar Cyclooctatetraene
Nishinaga, T.*; Omae, T.; Iyoda, M.* *Pure Appl. Chem.* **2010**, *82*(4), 831-841.
- (17) Cyclic Tetrathiophenes Planarized by Silicon and Sulfur Bridges Bearing an Antiaromatic Cyclooctatetraene Core: Syntheses, Structures, and Properties
Ohmae, T.; Nishinaga, T.*; Wu, M.; Iyoda, M.* *J. Am. Chem. Soc.* **2010**, *132*(3), 1066-1074.
- (18) Synthesis of bitetrathiafulvalenes with FeCl₃-mediated homo-coupling of tetrathiafulvalenyl- magnesium chloride and molecular fiber formation from tetrakis(dodecylthio)tetrathiafulvalene
Honna, Y.; Isomura, E.; Enozawa, H.; Hasegawa, M.; Takase, M.; Nishinaga, T.; Iyoda, M.* *Tetrahedron Lett.* **2010**, *51*(4), 679-682.
- (19) Conjugated Molecular Belts Based on 3-D Benzannulene Systems
Iyoda, M.; Kuwatani, Y.; Nishinaga, T.; Takase, M.; Nishiuchi, T. In *Fragments of Fullerenes and Carbon Nanotubes: Designed Synthesis, Unusual Reactions, and Coordination Chemistry*, Eds. Petrukhina, M. A.; Scott, L. T., Wiley-VCH, in press.
- (20) Fully Conjugated Nano-Sized Macrocycles: Syntheses and Versatile Properties
Takase, M.; Iyoda, M. In *Conjugated Polymer Synthesis- Methods and Reactions*, Ed. Chujo, Y., Wiley-VCH, Weinheim, 2010, pp 165-194.

- (21) 導電性超分子ナノ集積体の構築と機能
長谷川真士, 伊與田正彦, *ファインケミカル*, **2011**, 40(3), 29–35.
- (22) 有機分子のナノ集積体化学
伊與田正彦, *ファインケミカル*, **2011**, 40(3), 5–6.

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) Self-organization of fully conjugated macrocycles: synthesis and functional properties
Iyoda, M. The 2010 International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA, 2010.12.15-20 (口頭発表).
- (2) Synthesis, properties, and self-assembling behaviors of cyclic triphenylene trimer with long alkyl chains
Hanai, Y.; Rahman, M. J.; Yamakawa, J.; Nishinaga, T.; Takase, M.; Iyoda, M. The 2010 International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA, 2010.12.15-20 (ポスター発表).
- (3) Supramolecular nanostructures based on self-assembly of C_{2v} symmetric triphenylene derivatives: formation of nanofibers, nanorings, and nanotubes
Yamakawa, J.; Nishinaga, T.; Iyoda, M. 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) Electrical conductivities and morphologies of TTF-4,5-bis(alkylamide)s bearing long alkylthio groups in neutral and oxidation states
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- (5) Synthesis and optical properties of star-shaped oligothiophenes
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- (6) Steric control of π -dimerization of oligothiophene radical cations
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- (7) Facile synthesis and properties of dithieno[a,c]anthracene derivatives
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- (8) Conducting Supramolecular Nanofibers and Nanorods
Iyoda, M. The 11th Eurasia Conference, the dead sea, Jordan, 2010.10.6-10 (口頭発表) .
- (9) Steric control of π -dimerization of oligothiophene radical cations
Tateno, M.; Nishinaga, T.; Takase, M.; Iyoda, M. The 2nd TMU/SNU Joint Seminar on Nano-Science and Related Topics, Tokyo, 2010.8. (ポスター発表) .
- (10) Star-shaped pyrrole-fused tetrathiafulvalenes: Synthesis and redox, self-assembling, and conductive properties
Yoshida, N.; Takase, M.; Nishinaga, T.; Iyoda, M. The 2nd TMU/SNU Joint Seminar on Nano-Science and Related Topics, Tokyo, 2010.8. (ポスター発表) .

3. 特許

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4. 学会・シンポジウム等の開催状況

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5. 受賞等

特になし

6. 新聞報道等

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7. 領域内の共同研究の準備・実施状況とその成果

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8. その他特記事項

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