

## Publication List

### Original papers

- 87 Synthesis of a Diimidazolylporphyrin Pincer Palladium Complex  
J. Yamamoto, T. Shimizu, S. Yamaguchi, N. Aratani, H. Shinokubo, A. Osuka  
*J. Porphyrins Phthalocyanines* **2011**, *15*, in press.
- 86 A Hexameric Porphyrin Triangle Constructed by Suzuki-Miyaura Cross-Coupling  
J. Song, N. Aratani, H. Shinokubo, A. Osuka  
*Chem. Lett.* **2011**, in press.
- 85 Excited-state energy relaxation dynamics of triply linked Zn(II) porphyrin arrays  
P. Kim, T. Ikeda, J. M. Lim, J. Park, M. Lim, N. Aratani, A. Osuka, D. Kim  
*Chem. Commun.* **2011**, *47*, 4433.
- 84 A  $\beta$ -to- $\beta$  2,5-thienylene-bridged cyclic porphyrin tetramer: its rational synthesis and 1 : 2 binding mode with C<sub>60</sub>  
J. Song, N. Aratani, H. Shinokubo, A. Osuka  
*Chem. Sci.* **2011**, *2*, 748.
- 83 Pyrrole-Bridged Porphyrin Nanorings (selected as Inside Cover Picture)  
J. Song, N. Aratani, H. Shinokubo, A. Osuka  
*Chem. Eur. J.*, **2010**, *16*, 13320.
- 82 A Porphyrin Nanobarrel That Encapsulates C<sub>60</sub>  
J. Song, N. Aratani, H. Shinokubo, A. Osuka  
*J. Am. Chem. Soc.*, **2010**, *132*, 16356.
- 81 Molecular-Shape-Dependent Photophysical Properties of *meso*- $\beta$  Doubly Linked Zn(II) Porphyrin Arrays and Their Indene-Fused Analogues  
J. H. Heo, T. Ikeda, J. M. Lim, N. Aratani, A. Osuka, D. Kim  
*J. Phys. Chem. B*, **2010**, *114*, 14528.
- 80 Directly Pd(II)-Bridged Porphyrin Belts with Remarkable Curvatures  
J. Song, N. Aratani, J. H. Heo, D. Kim, H. Shinokubo, A. Osuka  
*J. Am. Chem. Soc.*, **2010**, *132*, 11868.
- 79 Ultrahigh Porosity in Metal-Organic Frameworks  
H. Furukawa, N. Ko, Y. B. Go, N. Aratani, S. B. Choi, E. Choi, A. Ö. Yazaydin, R. Q. Snurr, M. O'Keeffe, J. Kim, O. M. Yaghi  
*Science*, **2010**, *329*, 424.

- 78 *meso*-Trifluoromethyl-substituted Subporphyrin from Ring-splitting Reaction of *meso*-Trifluoromethyl-substituted [32]Heptaphyrin(1.1.1.1.1.1.1)  
R. Sakamoto, S. Saito, S. Shimizu, Y. Inokuma, N. Aratani, A. Osuka  
*Chem. Lett.*, **2010**, *39*, 439.
- 77 Porphyrin "Lego Block" Strategy To Construct Directly *meso*- $\beta$  Doubly Linked Porphyrin Rings  
J. Song, N. Aratani, P. Kim, D. Kim, H. Shinokubo, A. Osuka  
*Angew. Chem. Int. Ed.* **2010**, *49*, 3617.
- 76 Bithiophene Porphyrin Hybrid Nanorings  
K. Osawa, J. Song, K. Furukawa, H. Shinokubo, N. Aratani, A. Osuka  
*Chem. Asian J.*, **2010**, *5*, 764.
- 75 Strategic Synthesis of 2,6-Pyridylene-Bridged  $\beta$ -to- $\beta$  Porphyrin Nanorings through Cross-Coupling,  
J. Song, P. Kim, N. Aratani, D. Kim, H. Shinokubo, A. Osuka  
*Chem. Eur. J.*, **2010**, *16*, 3009.
- 74 Rapid Intramolecular Hole Hopping in *meso-meso* and *meta*-Phenylene Linked Linear and Cyclic Multiporphyrin Arrays  
T. M. Wilson, T. Hori, M.-C. Yoon, N. Aratani, A. Osuka, D. Kim, M. R. Wasielewski  
*J. Am. Chem. Soc.*, **2010**, *132*, 1383.
- 73 A Stable Organic Radical Delocalized on a Highly Twisted  $\pi$  System Formed Upon Palladium Metalation of a Möbius Aromatic Hexaphyrin  
H. Rath, S. Tokuji, N. Aratani, K. Furukawa, J. M. Lim, D. Kim, H. Shinokubo, A. Osuka  
*Angew. Chem. Int. Ed.*, **2010**, *49*, 1489.
- 72 Palladium-Catalyzed Dimerization of *meso*-Bromoporphyrins: Highly Regioselective *meso*- $\beta$  Coupling via Unprecedented Remote C-H bond Cleavage  
S. Tokuji, T. Yurino, N. Aratani, H. Shinokubo, A. Osuka  
*Chem. Eur. J.*, **2009**, *15*, 12208.
- 71 Structural Dependence on Excitation Energy Migration Processes in Artificial Light Harvesting Cyclic Zinc(II) Porphyrin Arrays  
M.-C. Yoon, S. Cho, P. Kim, T. Hori, N. Aratani, A. Osuka, D. Kim  
*J. Phys. Chem. B*, **2009**, *113*, 15074.
- 70 Selective Formation of a Single Atropisomer of *meso-meso* Linked Zn<sup>II</sup> Diporphyrin via Supramolecular Self-Assembly  
C. Maeda, T. Kamada, N. Aratani, T. Sasamori, N. Tokitoh, A. Osuka  
*Chem. Eur. J.*, **2009**, *15*, 9681.

- 69 *Meso-β* Doubly Linked Zn(II) Porphyrin Trimers: Distinct *anti*-versus-*syn* Effects on Their Photophysical Properties  
T. Ikeda, N. Aratani, S. Easwaramoorthi, D. Kim, A. Osuka  
*Org. Lett.*, **2009**, *11*, 3080.
- 68 Structural Factors Determining Photophysical Properties of Directly Linked Zinc(II) Porphyrin Dimers: Linking Position, Dihedral Angle, and Linkage Length  
S. Cho, M.-C. Yoon, J. M. Lim, P. Kim, N. Aratani, Y. Nakamura, T. Ikeda, A. Osuka, D. Kim  
*J. Phys. Chem. B*, **2009**, *113*, 10619.
- 67 Synthesis of Extremely  $\pi$ -Extended Porphyrin Tapes from Hybrid *meso-meso* Linked Porphyrin Arrays: An Approach Towards the Conjugation Length  
T. Ikeda, N. Aratani, A. Osuka  
*Chem. Asian J.*, **2009**, *4*, 1248.
- 66 Ultrafast all-optical light modulation in the near infrared region by phase sensitive polymer guided wave mode geometry containing porphyrin tapes  
R. Matsumoto, T. Nagamura, N. Aratani, T. Ikeda, A. Osuka  
*Appl. Phys. Lett.* **2009**, *94*, 253301.
- 65 Determination of the Superradiance Coherence Length of Directly Linked Linear Porphyrin Arrays at the Single-molecule Level  
J. Yang, H. Yoo, N. Aratani, A. Osuka, D. Kim  
*Angew. Chem. Int. Ed.*, **2009**, *48*, 4323.
- 64 Post-Modification of *meso-meso* Linked Porphyrin Arrays via Iridium and Rhodium Catalyses for Tuning of Energy Gap  
J. Chen, N. Aratani, H. Shinokubo, A. Osuka  
*Chem. Asian J.*, **2009**, *4*, 1126.
- 63 Bis-rhodium Hexaphyrins: Metalation of [28]Hexaphyrin and a Smooth Hückel Aromatic–Antiaromatic Interconversion  
H. Rath, N. Aratani, J. M. Lim, J. S. Lee, D. Kim, H. Shinokubo, A. Osuka  
*Chem. Commun.*, **2009**, 3762.
- 62 Facile Synthesis and Photophysical Properties of 1,2-Phenylene-bridged Porphyrin Dimers  
K. Osawa, N. Aratani, A. Osuka  
*Tetrahedron Lett.*, **2009**, *50*, 3333.
- 61 Zwitterionic Corroles: Regioselective Nucleophilic Pyridination of a Doubly Linked Biscorrole  
S. Hiroto, N. Aratani, N. Shibata, Y. Higuchi, T. Sasamori, N. Tokitoh, H. Shinokubo, A. Osuka

- Angew. Chem. Int. Ed.*, **2009**, *48*, 2388.
- 60 Fluorescence Dynamics of Directly *Meso-Meso* Linked Porphyrin Rings Probed by Single Molecule Spectroscopy  
H. Yoo, J. Yang, Y. Nakamura, N. Aratani, A. Osuka, D. Kim  
*J. Am. Chem. Soc.*, **2009**, *131*, 1488.
- 59 Synthesis and characterizations of free base and Cu(II) complex of a porphyrin sheet  
Y. Nakamura, N. Aratani, K. Furukawa, A. Osuka  
*Tetrahedron*, **2008**, *64*, 11433.
- 58 2,5-Thienylene-Bridged Triangular and Linear Porphyrin Trimers  
J. Song, S. Y. Jang, S. Yamaguchi, J. Sankar, S. Hiroto, N. Aratani, J.-Y. Shin, S. Easwaramoorthi, K. S. Kim, D. Kim, H. Shinokubo, A. Osuka  
*Angew. Chem. Int. Ed.*, **2008**, *47*, 6004.
- 57 Two-Dimensionally Extended Porphyrin Tapes: Synthesis and Shape-Dependent Two-Photon Absorption Properties  
Y. Nakamura, S. Y. Jang, T. Tanaka, N. Aratani, J. M. Lim, K. S. Kim, D. Kim, A. Osuka  
*Chem. Eur. J.*, **2008**, *14*, 8279.
- 56 A *meso-meso* directly linked octameric porphyrin square  
N. Aratani, A. Osuka  
*Chem. Commun.*, **2008**, 4067.
- 55 Regioselective [3+4] cycloaddition of an azomethine ylide to *meso-meso*,  $\beta$ - $\beta$ ,  $\beta'$ - $\beta'$  triply linked diporphyrins  
T. Tanaka, Y. Nakamura, N. Aratani, A. Osuka  
*Tetrahedron Lett.*, **2008**, *49*, 3308.
- 54 Excitation Energy Migration Processes in Cyclic Porphyrin Arrays Probed by Single Molecule Spectroscopy  
J. Yang, M. Park, Z. S. Yoon, T. Hori, X. Peng, N. Aratani, J. Hotta, H. Uji-i, M. Sliwar, J. Hofkens, A. Osuka, D. Kim  
*J. Am. Chem. Soc.*, **2008**, *130*, 1879.
- 53 Metalation of Expanded Porphyrins: A Chemical Trigger Used to Produce Molecular Twisting and Möbius Aromaticity  
Y. Tanaka, S. Saito, S. Mori, N. Aratani, H. Shinokubo, N. Shibata, Y. Higuchi, Z. S. Yoon, K. S. Kim, S. B. Noh, J. K. Park, D. Kim, A. Osuka  
*Angew. Chem. Int. Ed.*, **2008**, *47*, 681.

- 52 Synthesis of Nanometer-scale Porphyrin Wheels of Variable Size  
T. Hori, X. Peng, N. Aratani, A. Takagi, T. Matsumoto, T. Kawai, Z. S. Yoon, M.-C. Yoon, J. Yang, D. Kim, A. Osuka  
*Chem. Eur. J.*, **2008**, *14*, 582.
- 51 Experimental and Theoretical Investigations into the Paratropic Ring Current of a Porphyrin Sheet  
Y. Nakamura, N. Aratani, A. Osuka,  
*Chem. Asian J.*, **2007**, *2*, 860.
- 50 Synthesis of Three-dimensionally Arranged Porphyrin Arrays via Intramolecular *meso-meso* Coupling  
G. Mori, N. Aratani, A. Osuka  
*Tetrahedron*, **2007**, *63*, 7916.
- 49 Perturbation of Electronic States and Energy Relaxation Dynamics in a Series of Phenylene Bridged Zn(II) Porphyrin Dimers  
S. Cho, M.-C. Yoon, C. H. Kim, N. Aratani, G. Mori, T. Joo, A. Osuka, D. Kim  
*J. Phys. Chem. C*, **2007**, *111*, 14881.
- 48 A Hexagonal Prismatic Porphyrin Array: Synthesis, STM Detection, and Efficient Energy Hopping in Near-Infrared Region  
M.-C. Yoon, Z. S. Yoon, Sung Cho, D. Kim A. Takagi, T. Matsumoto, T. Kawai, T. Hori, X. Peng, N. Aratani, A. Osuka  
*J. Phys. Chem. A*, **2007**, *111*, 9233.
- 47 Discrete Dihedral-angle Modulation in Porphyrin Wheels Adsorbed on Cu(100) Observed by Scanning Tunneling Microscopy  
A. Takagi, T. Hori, X. Peng, N. Aratani, T. Matsumoto, A. Osuka, T. Kawai  
*Surface Science*, **2007**, *601*, 2178.
- 46 Single-Molecule Spectroscopic Investigation of Energy Migration Processes in Cyclic Porphyrin Arrays  
M. Park, M.-C. Yoon, Z. S. Yoon, T. Hori, X. Peng, N. Aratani, J. Hotta, H. Ujiki, M. Sliwa, J. Hofkens, A. Osuka, D. Kim  
*J. Am. Chem. Soc.*, **2007**, *129*, 3539.
- 45 Synthesis and Characterization of Facially Encumbered and Soluble Porphyrin Tapes  
T. Ikeda, A. Tsuda, N. Aratani, A. Osuka  
*Chem. Lett.*, **2006**, *35*, 946.
- 44 Synthesis of Brominated Directly Fused Diporphyrins through Gold(III)-Mediated Oxidation  
A. K. Sahoo, Y. Nakamura, N. Aratani, K. S. Kim, S. B. Noh, H. Shinokubo, D. Kim, A. Osuka  
*Org. Lett.*, **2006**, *8*, 4141.

- 43 Intramolecular and Intermolecular Energy Transfers in Donor-acceptor Linear Porphyrin Arrays  
H. Rhee, T. Joo, N. Aratani, A. Osuka, S. Cho, D. Kim  
*J. Chem. Phys.*, **2006**, *125*, 074902.
- 42 Synthesis of Doubly Strapped *meso-meso*-Linked Porphyrin Arrays and Triply Linked Conjugated Porphyrin Tapes  
T. Ikeda, J. M. Lintuluoto, N. Aratani, Z. S. Yoon, D. Kim, A. Osuka  
*Eur. J. Org. Chem.*, **2006**, 3193.
- 41 Electrical Transport Properties and Their Reproducibility for Linear Porphyrin Arrays  
B. K. Kang, N. Aratani, J. K. Lim, D. Kim, A. Osuka, K. H. Yoo  
*Mater. Sci. Enginee. C*, **2006**, *26*, 1023.
- 40 *meso*-Trifluoromethyl-substituted Expanded Porphyrins  
S. Shimizu, N. Aratani, A. Osuka  
*Chem. Eur. J.*, **2006**, *12*, 4909.
- 39 High Fidelity Self-Sorting Assembling of *meso*-Cinchomeronimide Appended *meso-meso* Linked Zn(II) Diporphyrins  
T. Kamada, N. Aratani, T. Ikeda, N. Shibata, Y. Higuchi, A. Wakamiya, S. Yamaguchi, K. S. Kim, Z. S. Yoon, D. Kim, A. Osuka  
*J. Am. Chem. Soc.*, **2006**, *128*, 7670.
- 38 A Directly Fused Tetrameric Porphyrin Sheet and Its Anomalous Electronic Properties That Arise from the Planar Cyclooctatetraene Core  
Y. Nakamura, N. Aratani, H. Shinokubo, A. Takagi, T. Kawai, T. Matsumoto, Z. S. Yoon, D. Y. Kim, T. K. Ahn, D. Kim, A. Muranaka, N. Kobayashi, A. Osuka  
*J. Am. Chem. Soc.*, **2006**, *128*, 4119.
- 37 Excitation Energy Migration in a Dodecameric Porphyrin Box  
I.-W. Hwang, Z. S. Yoon, J. Kim, T. Kamada, T. K. Ahn, N. Aratani, A. Osuka, D. Kim  
*J. Photochem. Photobiol. A: Chemistry*, **2006**, *178*, 130.
- 36 Enhancement of External Quantum Efficiency of Red Phosphorescent Organic Light-Emitting Devices with Facially Encumbered and Bulky Pt(II) Porphyrin Complexes  
M. Ikai, F. Ishikawa, N. Aratani, A. Osuka, S. Kawabata, T. Kajioka, H. Takeuchi, H. Fujikawa, Y. Taga  
*Adv. Funct. Mat.*, **2006**, *16*, 515.
- 35 Correlation of Fluorescence Anisotropy Decay with Molecular Size and Shape of Covalently and Noncovalently Bound Large Porphyrin Arrays  
N. Aratani, Z. S. Yoon, D. Kim, A. Osuka  
*J. Chin. Chem. Soc.*, **2006**, *53*, 41.

- 34 Relationship between Two-Photon Absorption and  $\pi$ -Conjugation Pathway in Porphyrin Arrays through Dihedral Angle Control  
T. K. Ahn, K. S. Kim, D. Y. Kim, S. B. Noh, N. Aratani, C. Ikeda, A. Osuka, D. Kim  
*J. Am. Chem. Soc.*, **2006**, *128*, 1700.
- 33 Giant Porphyrin Wheels with Large Electronic Coupling as Models of Light-harvesting Photosynthetic Antenna  
T. Hori, N. Aratani, A. Takagi, T. Matsumoto, T. Kawai, M.-C. Yoon, Z. S. Yoon, S. Cho, D. Kim, A. Osuka  
*Chem. Eur. J.*, **2006**, *12*, 1319.
- 32 The Importance of a  $\beta$ - $\beta$  Bond for Long-Range Antiferromagnetic Coupling in Directly Linked Copper(II) and Silver(II) Diporphyrins  
T. Ikeue, K. Furukawa, H. Hata, N. Aratani, H. Shinokubo, T. Kato, A. Osuka  
*Angew. Chem., Int. Ed.*, **2005**, *44*, 6899.
- 31 Single Molecule Spectroscopic Investigation on Conformational Heterogeneity of Directly Linked Zinc(II) Porphyrin Arrays  
M. Park, S. Cho, Z. S. Yoon, N. Aratani, A. Osuka, D. Kim  
*J. Am. Chem. Soc.*, **2005**, *127*, 15201.
- 30 Synthesis and Characterization of Fully Conjugated Porphyrin Tapes  
T. Ikeue, N. Aratani, A. Osuka  
*Israel J. Chem.*, **2005**, *45*, 293.
- 29 Length and Temperature Dependence of Electrical Conduction through Dithiolated Porphyrin Arrays  
B. K. Kang, N. Aratani, J. K. Lim, D. Kim, A. Osuka, K.-Y. Yoo  
*Chem. Phys. Lett.*, **2005**, *412*, 303.
- 28 Giant *meso-meso* Linked Porphyrin Arrays of Micrometer Molecular Length and Their Fabrication  
N. Aratani, A. Takagi, Y. Yanagawa, T. Matsumoto, T. Kawai, Z. S. Yoon, D. Kim, A. Osuka  
*Chem. Eur. J.*, **2005**, *11*, 3389.
- 27 Effect of Conformational Heterogeneity on Excitation Energy Transfer Efficiency in Directly *meso-meso* Linked Zn(II) Porphyrin Arrays  
T. K. Ahn, Z. S. Yoon, I.-W. Hwang, J. K. Lim, H. Rhee, T. Joo, E. Sim, S. K. Kim, N. Aratani, A. Osuka, D. Kim  
*J. Phys. Chem. B*, **2005**, *109*, 11223.
- 26 Excitation Energy Migration in A Dodecameric Porphyrin Wheel  
I.-W. Hwang, D. M. Ko, T. K. Ahn, Z. S. Yoon, D. Kim, X. Peng, N. Aratani, A. Osuka  
*J. Phys. Chem. B*, **2005**, *109*, 8643.

- 25 Large Two-Photon Absorption (TPA) Cross-Section of Directly Linked Fused Diporphyrins  
D. Y. Kim, T. K. Ahn, J. H. Kwon, D. Kim, T. Ikeue, N. Aratani, A. Osuka, M. Shigeiwa, S. Maeda  
*J. Phys. Chem. A*, **2005**, *109*, 2996.
- 24 Quantum-Chemical Investigation of the Electroabsorption Spectra of Directly *meso-meso* Linked Porphyrin Arrays: Essential Role of Charge-Transfer Excited States Accidentally Overlapping with Soret Bands  
Y. Matsuzaki, A. Nogami, Y. Iwaki, N. Ohta, N. Yoshida, N. Aratani, A. Osuka, K. Tanaka  
*J. Phys. Chem. A*, **2005**, *109*, 703.
- 23 Directly *meso-meso* Linked Porphyrin Rings: Synthesis, Characterization, and Efficient Excitation Energy Hopping  
Y. Nakamura, I.-W. Hwang, N. Aratani, T. K. Ahn, A. Takagi, T. Kawai, T. Matsumoto, D. Kim, A. Osuka  
*J. Am. Chem. Soc.*, **2005**, *127*, 237.
- 22 1,4-Phenylene-bridged *meso-meso* Linked Diporphyrin Array  
X. Peng, Y. Nakamura, N. Aratani, D. Kim, A. Osuka  
*Tetrahedron Lett.*, **2004**, *45*, 4981.
- 21 A Dodecameric Porphyrin Wheel  
X. Peng, N. Aratani, A. Takagi, T. Matsumoto, T. Kawai, I.-W. Hwang, T. K. Ahn, D. Kim, A. Osuka  
*J. Am. Chem. Soc.*, **2004**, *126*, 4468.
- 20 Thermal Splitting of Bis-Cu(II) Octaphyrin(1.1.1.1.1.1.1.1) into Two Cu(II) Porphyrins  
Y. Tanaka, W. Hoshino, S. Shimizu, K. Youfu, N. Aratani, N. Maruyama, S. Fujita, A. Osuka  
*J. Am. Chem. Soc.*, **2004**, *126*, 3046.
- 19 Excitonic Coupling Strength and Coherence Length in the Singlet and Triplet Excited States of *meso-meso* Directly Linked Zn(II)porphyrin Arrays  
J.-H. Ha, H. S. Cho, J. K. Song, D. Kim, N. Aratani, A. Osuka  
*ChemPhysChem*, **2004**, *5*, 57.
- 18 STM Images of Individual Porphyrin Hexamers; *meso-meso* Singly Linked Orthogonal Hexamer and *meso-meso*,  $\beta$ - $\beta$ ,  $\beta$ - $\beta$  Triply-Linked Planar Hexamer on Cu(100) Surface  
A. Takagi, Y. Yanagawa, A. Tsuda, N. Aratani, T. Matsumoto, A. Osuka, T. Kawai  
*Chem. Commun.*, **2003**, 29.
- 17 Oxidative Direct Coupling of Metalloporphyrins  
Y. Nakamura, N. Aratani, A. Tsuda, A. Osuka, K. Furukawa, T. Kato  
*J. Porphyrins Phthalocyanines*, **2003**, *7*, 264.

- 16 Electrical Conduction through Linear Porphyrin Arrays  
D. H. Yoon, S. B. Lee, K. H. Yoo, J. Kim, J. K. Lim, N. Aratani, A. Tsuda, A. Osuka, D. Kim  
*J. Am. Chem. Soc.*, **2003**, *125*, 11062.
- 15 Efficient Excitation Energy Transfer in Long meso-meso Linked Zn(II) Porphyrin Arrays Bearing a 5,15-Bisphenylethynylated Zn(II) Porphyrin Acceptor  
N. Aratani, H. S. Cho, T. K. Ahn, S. Cho, D. Kim, H. Sumi, A. Osuka  
*J. Am. Chem. Soc.*, **2003**, *125*, 9668.
- 14 Observation of Quantum Coherence for Recurrence Motion of Exciton in Anthracene Dimers in Solution  
I. Yamazaki, N. Aratani, S. Akimoto, T. Yamazaki, A. Osuka  
*J. Am. Chem. Soc.*, **2003**, *125*, 7192.
- 13 Metal-Dependent Regioselective Oxidative Coupling of 5,10,15-Triarylporphyrins with DDQ-Sc(OTf)<sub>3</sub> and Formation of an Oxo-quinoidal Porphyrin  
M. Kamo, A. Tsuda, Y. Nakamura, N. Aratani, K. Furukawa, T. Kato, A. Osuka  
*Org. Lett.*, **2003**, *5*, 2079.
- 12 Excitation Energy Transport Processes of Porphyrin Monomer, Dimer, Cyclic Trimer, and Hexamer Probed by Ultrafast Fluorescence Anisotropy Decay  
H. S. Cho, H. Rhee, J. K. Song, C.-K. Min, M. Takase, N. Aratani, S. Cho, A. Osuka, T. Joo, D. Kim  
*J. Am. Chem. Soc.*, **2003**, *125*, 5849.
- 11 Ground and Excited States of Linked and Fused Zinc Porphyrin Dimers: Symmetry Adapted Cluster (SAC)-Configuration Interaction (CI) Study  
T. Miyahara, H. Nakatsuji, J. Hasegawa, A. Osuka, N. Aratani, A. Tsuda  
*J. Chem. Phys.* **2003**, *117*, 11196.
- 10 Energy Relaxation Dynamics of Excited Triplet States of Directly Linked Zn(II)porphyrin Arrays  
N. W. Song, H. S. Cho, M.-C. Yoon, N. Aratani, A. Osuka, D. Kim  
*Bull. Korean Chem. Soc.*, **2002**, *23*, 271.
- 9 Excitation Dynamics and its Electric Field Dependence of *meso,meso*-Linked Porphyrin Arrays in a Polymer Film  
N. Ohta, Y. Iwaki, A. Osuka, N. Aratani  
*Intern. J. Modern Phys. B*, **2002**, *15*, 3588.
- 8 Resonance Raman Spectroscopic Investigation of Directly Linked Zinc(II) Porphyrin Linear Arrays  
D. H. Jeong, M.-C. Yoon, S. M. Jang, D. Kim, D. W. Cho, N. Yoshida, N. Aratani, A. Osuka  
*J. Phys. Chem. A*, **2002**, *106*, 2359.
- 7 Synthesis of *meso-meso* Linked Hybrid Porphyrin Arrays by Pd-catalyzed Cross-coupling Reaction

- N. Aratani, A. Osuka  
*Org. Lett.*, **2001**, 3, 4213.
- 6 Directly Linked Dehydropurpurin- Porphyrin Dyads from Ag(I)-promoted Oxidation of *meso*-Phenylethynyl Substituted Zinc(II) Porphyrins  
A. Nakano, N. Aratani, H. Furuta, A. Osuka  
*Chem. Commun.*, **2001**, 1920.
- 5 Excited-State Energy Transfer Processes in Phenylene- and Biphenylene-Linked and Directly-Linked Zinc(II) and Free-base Hybrid Diporphyrins  
H. S. Cho, D. H. Jeong, M.-C. Yoon, Y. H. Kim, Y. R. Kim, D. Kim, S. C. Jeoung, S. K. Kim, N. Aratani, H. Shinmori, A. Osuka  
*J. Phys. Chem. A*, **2001**, 105, 4200.
- 4 Transient Absorption Anisotropy Study of Ultrafast Energy Transfer in Porphyrin Monomer, its Direct *meso-meso* Coupled Dimer and Trimer  
C.-K. Min, T. Joo, M.-C. Yoon, C. M. Kim, Y. N. Hwang, D. Kim, N. Aratani, N. Yoshida, A. Osuka  
*J. Chem. Phys.*, **2001**, 114, 6750.
- 3 Photophysical Properties of Long Rodlike *meso-meso*-Linked Zinc(II) Porphyrins Investigated by Time-resolved Laser Spectroscopic Methods  
Y. H. Kim, D. H. Jeong, D. Kim, S. C. Jeoung, H. S. Cho, S. K. Kim, N. Aratani, A. Osuka  
*J. Am. Chem. Soc.*, **2001**, 123, 76.
- 2 Extremely Long, Discrete *meso-meso*-Coupled Porphyrin Arrays  
N. Aratani, A. Osuka, Y. H. Kim, D. H. Jeong, D. Kim  
*Angew. Chem., Int. Ed.*, **2000**, 39, 1458.
- 1 Poly(Zinc(II)-5,15-Porphyrinylene) from Silver(I)- promoted Oxidation of Zinc(II)-5,15- Diarylporphyrins  
N. Yoshida, N. Aratani, A. Osuka  
*Chem. Commun.*, **2000**, 197.

#### Accounts

- 12 Discrete Cyclic Porphyrin Arrays as Artificial Light-Harvesting Antenna  
N. Aratani, D. Kim, A. Osuka  
*Acc. Chem. Res.*, **2009**, 42, 1922.
- 11  $\pi$ -Conjugation Enlargement Toward the Creation of Multi-Porphyrinic Systems with Large Two-Photon Absorption Properties  
N. Aratani, D. Kim, A. Osuka  
*Chem. Asian J.* **2009**, 4, 1172.

- 10 Chiral Self-discriminative Self-assembling of *meso-meso* Linked Diporphyrins  
C. Maeda, T. Kamada, N. Aratani, A. Osuka  
*Coord. Chem. Rev.*, **2007**, 251, 2743.
- 9 Cyclic Porphyrin Arrays as Artificial Photosynthetic Antenna: Synthesis and Excitation Energy Transfer  
Y. Nakamura, N. Aratani, A. Osuka  
*Chem. Soc. Rev.*, **2007**, 36, 831.
- 8 Exploration of Electronically Interactive Cyclic Porphyrin Arrays  
T. Hori, Y. Nakamura, N. Aratani, A. Osuka  
*J. Organomet. Chem.*, **2007**, 692, 148.
- 7 Excitation Energy Migration in Multiporphyrin Arrays  
I.-W. Hwang, N. Aratani, A. Osuka, D. Kim  
*Bull. Korean Chem. Soc.*, **2005**, 26, 19.
- 6 Observation of Coherent Recurrence Motion of Excitons in Anthracene Dimers  
I. Yamazaki, S. Akimoto, N. Aratani, A. Osuka  
*Bull. Chem. Soc. Jpn*, **2004**, 77, 1959.
- 5 Directly Linked Porphyrin Arrays  
N. Aratani, A. Osuka  
*Chem. Record*, **2003**, 3, 225.
- 4 Photochemistry of Covalently-Linked Multi-Porphyrinic Systems  
N. Aratani, A. Osuka, H. S. Cho, D. Kim  
*J. Photochem. Photobiol. C: Photochem. Rev.*, **2002**, 3, 25.
- 3 Discrete Giant Porphyrin Arrays: Challenges to Molecular Size, Length and the Extent of Electronic  $\pi$ -Conjugation  
N. Aratani, A. Tsuda, A. Osuka  
*Synlett*, **2001**, 1663.
- 2 A New Strategy for Construction of Covalently Linked Giant Porphyrin Arrays with One, Two, and Three Dimensionally Arranged Architectures  
N. Aratani, A. Osuka  
*Bull. Chem. Soc. Jpn.*, **2001**, 74, 1361.
- 1 Monodisperse Giant Porphyrin Arrays  
N. Aratani, A. Osuka, Macromole.  
*Rapid Commun.*, **2001**, 22, 725.

## Books

- 7 Synthetic Strategies Toward Multiporphyrinic Architectures  
N. Aratani, A. Osuka  
Handbook of Porphyrin Science: With Applications to Chemistry, Physics, Materials Science, Engineering, Biology and Medicine, K. M. Kadish, K. M. Smith, R. Guilard Eds. World Scientific: New Jersey, 2010, Vol. 1, Ch. 1.
- 6 自己識別会合  
荒谷直樹・大須賀篤弘  
配位空間の化学 (北川進 監修), 第IV編, 第3章, 320 シーエムシー出版 (2009).
- 5 ポルフィリンワイア  
荒谷直樹  
超分子サイエンス&テクノロジー (国武豊喜 監修), 第2章, 第2節 11, 345 NTS (2009).
- 4 連結・共役型ポルフィリンの合成と機能  
荒谷直樹・大須賀篤弘  
電子共役系電子材料の創製・機能開発・応用 (檜山爲次郎 監修), 応用編, 第5章, 181 シーエムシー出版 (2007).
- 3 超分子 $\pi$ 電子系化合物  
荒谷直樹・大須賀篤弘  
自己組織化ナノマテリアル (下村政嗣・山口智彦 編), 5章, 3節, 246 フロンティア出版 (2007).
- 2 超分子ポルフィリン多量体の分子設計と合成戦略  
荒谷直樹・大須賀篤弘  
超分子科学—ナノ材料創製に向けて (中嶋 直敏 編著), 24章, 243 化学同人 (2003).
- 1 Directly Linked and Fused Oligoporphyrin Arrays  
A. Tsuda, N. Yoshida, A. Nakano, N. Aratani, A. Osuka  
Advanced Macromolecular and Supramolecular Materials and Processes, Kurt E. Geckeler Ed. Kluwer Academic Publishers: New York, 115 (2003).

## 解説

- 7 構造の明確な巨大分子を創る  
荒谷直樹  
飛翔する若手研究者、化学と工業, **2010**, 63, 905.
- 6 ポルフィリン多量体の化学  
荒谷直樹・大須賀篤弘  
固体物理, **2008**, 43, 809.
- 5 UCLA Omar M. Yaghi 研究室  
荒谷直樹  
Organometallic News (海外研究室レポート), **2008**, 168.
- 4 UCLA 滞在記  
荒谷直樹  
京都大学低温物質科学研究センター誌 (サロン), **2007**, 11, 52.
- 3 新規ポルフィリノイドの化学  
荒谷直樹・大須賀篤弘

- Organometallic News (トピックス), **2005**, 2.
- 2 メゾ-メゾ結合ポルフィリンおよび縮環ポルフィリン多量体の光物性  
荒谷直樹・大須賀篤弘  
光化学 (レビュー), **2004**, 35, 94.
- 1 ‘超’分子エレクトロニクス,  
荒谷直樹・大須賀篤弘  
高分子 (トピックス), **2003**, 52, 570.

#### 招待講演

##### Novel Fullerene Receptors based on Multi-Porphyrin Arrays

Naoki Aratani, Jianxin Song, Hiroshi Shinokubo, Atsuhiko Osuka

The first symposium on “Carbon Nanoforms”, Toledo, Spain, June 2-3 2011.

##### Construction of Multi-porphyrin Arrays via Pd-catalyzed Coupling Reactions

Naoki Aratani, Jianxin Song, Hiroshi Shinokubo, Atsuhiko Osuka

219th Meeting of the Electrochemical Society, Montréal, Canada, May 2011.

##### 光機能性巨大 $\pi$ 共役系化合物の創製

荒谷直樹

JST さきがけ研究領域合同シンポジウム「人類の危機に挑む研究開発：光と太陽エネルギー」平成 23 年 3 月 28 日

##### Photophysical Properties of Various Shaped Multi-porphyrin Arrays

Naoki Aratani

日本化学会第 9 1 春季年会、Asian Symposium on Photochemistry, 28, March, 2011.

##### 巨大ポルフィリンアレイの有機合成と機能開拓

荒谷 直樹

日本化学会第 9 1 春季年会 日本化学会進歩賞受賞講演 平成 23 年 3 月 26 日

##### 光機能性巨大ポルフィリンアレイの構築

荒谷 直樹、宋 建新、忍久保 洋、大須賀 篤弘

2011 年 (平成 23 年) 春季 第 58 回応用物理学関係連合講演会、平成 23 年 3 月 25 日

##### 構造の明確な巨大ポルフィリンアレイの化学

荒谷直樹

第 3 回 Chembio ハイブリッドレクチャー (東京大学) 平成 22 年 11 月 6 日

##### 様々な形状をもつ巨大ポルフィリンアレイの化学

荒谷 直樹

有機金属若手研究者の会 (東京大学) 平成 22 年 9 月 15 日

Construction of Various Shaped Multi-porphyrin Arrays via Transition-metal Catalyzed Coupling Reactions

Naoki Aratani, Jianxin Song, Hiroshi Shinokubo, Atsuhiko Osuka

International Symposium on Porphyrins and Phthalocyanines (ICPP6) New Mexico, 6 July 2010.

Porphyrin “Lego Block” Strategy To Construct Multi-porphyrin Arrays

Naoki Aratani and Atsuhiko Osuka

Sixth International Workshop on Supramolecular Nanoscience of Chemically Programmed Pigments (SNCPP10)

Ritsumeikan Univ. 12 June 2010.

Development of Large Photofunctional  $\pi$ -Conjugated Systems

Naoki Aratani

Post Meeting on Chemical Conversion of Light Energy, 29, March 2010.

Development of Large Photofunctional  $\pi$ -Conjugated Systems

Naoki Aratani

International Symposium on Chemical Conversion of Light Energy, 28, March 2010.

構造の明確な巨大ポルフィリンアレイの構築

荒谷 直樹

日本化学会第90春季年会 若い世代の特別講演会 平成22年3月27日

Electronically Interactive Giant Porphyrin Arrays

Naoki Aratani

Kyushu University Global COE Program “Science for Future Molecular Systems” The 10th International Workshop, 19, February, 2010.

Electronically Interactive Giant Porphyrin Arrays

Naoki Aratani

Japan-China Joint Symposium on Functional Supramolecular Architectures, 札幌、平成21年8月3日～5日

巨大分子の有機合成

荒谷直樹

第5回有機元素化学セミナー「高周期典型元素不飽和化合物の化学：新規物性・機能の探求」（京都大学）平成21年2月19日～20日

構造の明確な巨大分子を創る

荒谷直樹

京都大学グローバルCOEプログラム「物質科学の新基盤構築と次世代育成国際拠点」  
グローバルCOE有機若手ワークショップ（京都大学）平成20年9月11日～9月12日

メゾ-メゾ結合ポルフィリン超多量体の化学

荒谷直樹

第2回京都大学化学系 COE 合同シンポジウム「低温合成法による新機能性材料の創製」(京都大学)

平成18年2月17日

メゾ-メゾ結合ポルフィリン多量体の化学

荒谷直樹

第2回合成生体分子セミナー(立命館大学) 平成18年2月9日

Cyclic Architectures of Electronic Interacting Porphyrin Arrays

N. Aratani and A. Osuka

207th Meeting of the Electrochemical Society, Québec City, Canada, May 2005.