

研究業績リスト

令和4年5月20日現在

大阪公立大学大学院工学研究科
物質化学生命系専攻
化学バイオ工学分野
小島 誠也

原著論文

- (1) Bunichiro Yamada, Eiichi Kato, Seiya Kobatake, and Takayuki Otsu
Preparation of poly(methyl methacrylate) macromonomer by radical polymerization in the presence of methyl α -(bromomethyl)acrylate and copolymerization of the resultant macromonomer
Polym. Bull., **25(4)**, 423-430 (1991).
- (2) Bunichiro Yamada, Seiya Kobatake, and Takayuki Otsu
Control of molecular weight and end group of polymer by addition-fragmentation reaction with α -(bromomethyl)acrylate and allyl bromide
Polym. J., **24(3)**, 281-290 (1992).
- (3) Bunichiro Yamada, Mitsuo Fujita, Seiya Kobatake, and Takayuki Otsu
Dependence of ESR spectra of poly(fumaric ester) radicals on temperature and ester alkyl group
Polym. Bull., **29(1/2)**, 225-232 (1992).
- (4) Bunichiro Yamada, Seiya Kobatake, Masayuki Satake, and Takayuki Otsu
Introduction of 2-methoxycarbonylalyl end group by copolymerization of methyl α -(phenoxy-methyl)acrylate accompanying with addition-fragmentation reaction
J. Polym. Sci., Part A: Polym. Chem., **31(6)**, 1551-1559 (1993).
- (5) Bunichiro Yamada, Seiya Kobatake, and Shuzo Aoki
Polymerization and copolymerization of methyl 2-(chloromethyl)acrylate in competition with addition-fragmentation
Macromolecules, **26(19)**, 5099-5104 (1993).
- (6) Bunichiro Yamada, Seiya Kobatake, and Shuzo Aoki
Polymerization of 2-(substituted methyl)acrylate bearing ω -methoxyoligoethyleneoxy groups as side chains to new low T_g polymer
J. Polym. Sci., Part A: Polym. Chem., **31(13)**, 3433-3438 (1993).
- (7) Bunichiro Yamada, Seiya Kobatake, and Shuzo Aoki
Preparation of polymer with controlled molecular weight up to high conversion using methyl 2-bromomethylacrylate as a chain transfer agent in radical polymerization
Polym. Bull., **31(3)**, 263-270 (1993).
- (8) Bunichiro Yamada, Seiya Kobatake, and Shuzo Aoki
Synthesis of methyl methacrylate/styrene copolymer bearing a carbomethoxyallyl end group with limited molecular weight by addition-fragmentation reaction of methyl α -(bromomethyl)acrylate
Macromol. Chem. Phys., **195(2)**, 581-590 (1994).
- (9) Bunichiro Yamada, Seiya Kobatake, and Shuzo Aoki
Rate constants for elementary reactions of the radical polymerization of methyl 2-(benzyloxy-methyl)acrylate as polymerizable acrylate bearing large substituents
Macromol. Chem. Phys., **195(3)**, 933-942 (1994).
- (10) Seiya Kobatake, Bunichiro Yamada, and Shuzo Aoki
Synthesis and radical polymerization of multi-functional acrylic ester bearing a 2,2-bis(alkoxy-carbonyl)ethyl group as 2-substituent
Macromol. Rapid Commun., **15(2)**, 145-150 (1994).

- (11) Seiya Kobatake, Bunichiro Yamada, and Shuzo Aoki
Radical polymerization and copolymerization of methyl 2-(acyloxymethyl)acrylate as hindered 2-substituted acrylate
Polymer, **36(2)**, 413-419 (1995).
- (12) Seiya Kobatake and Bunichiro Yamada
Severely hindered propagation and termination allowing radical polymerization of α -substituted acrylate bearing a bis(carbomethoxy)ethyl group
Macromolecules, **28(12)**, 4047-4054 (1995).
- (13) Seiya Kobatake and Bunichiro Yamada
Radical polymerization and copolymerization of methyl α -(2-carbomethoxyethyl)acrylate, a dimer of methyl acrylate, as a polymerizable α -substituted acrylate
J. Polym. Sci., Part A: Polym. Chem., **34(1)**, 95-108 (1996).
- (14) Bunichiro Yamada, Seiya Kobatake, and Osamu Konosu
Preparation and polymerization behavior of 2-[2,2,2-tris(carboalkoxy)ethyl]acrylic ester as a sterically congested monomer
Macromol. Chem. Phys., **197(3)**, 901-910 (1996).
- (15) Seiya Kobatake and Bunichiro Yamada
Sterically hindered elementary reactions in radical polymerization of α -ethylacrylic esters as studied by ESR spectroscopy
Polym. J., **28(6)**, 535-542 (1996).
- (16) Takeshi Fukuda, Tomoya Terauchi, Atsushi Goto, Kohji Ohno, Yoshinobu Tsujii, Takeaki Miyamoto, Seiya Kobatake, and Bunichiro Yamada
Mechanisms and kinetics of nitroxide-controlled free radical polymerization
Macromolecules, **29(20)**, 6393-6398 (1996).
- (17) Seiya Kobatake, H. James Harwood, Roderic P. Quirk, and Duane B. Priddy
Synthesis of nitroxy-functionalized polybutadiene by anionic polymerization using a nitroxy-functionalized terminator
Macromolecules, **30(14)**, 4238-4240 (1997).
- (18) Seiya Kobatake and Bunichiro Yamada
Radical polymerization of a trimer of methyl acrylate as polymerizable α -substituted acrylate
Macromol. Chem. Phys., **198(9)**, 2825-2837 (1997).
- (19) Seiya Kobatake, H. James Harwood, Roderic P. Quirk, and Duane B. Priddy
Block copolymer synthesis by styrene polymerization initiated with nitroxy-functionalized polybutadiene
Macromolecules, **31(11)**, 3735-3739 (1998).
- (20) Seiya Kobatake, H. James Harwood, Roderic P. Quirk, and Duane B. Priddy
Nitroxide-mediated styrene polymerization initiated by an oxoaminium chloride
J. Polym. Sci., Part A: Polym. Chem., **36(14)**, 2555-2561 (1998).
- (21) Seiya Kobatake, H. James Harwood, Roderic P. Quirk, and Duane B. Priddy
Synthesis of nitroxide-functionalized polybutadiene using halogen-containing benzyloxyamine as terminators for anionic polymerization
Macromolecules, **32(1)**, 10-13 (1999).
- (22) Seiya Kobatake, Taro Yamada, Kingo Uchida, Nobuo Kato, and Masahiro Irie
Photochromism of 1,2-bis(2,5-dimethyl-3-thienyl)perfluorocyclopentene in a single crystalline phase
J. Am. Chem. Soc., **121(11)**, 2380-2386 (1999).
- (23) Masahiro Irie, Thorsten Lifka, Kingo Uchida, Seiya Kobatake, and Yuriko Shindo
Fatigue resistant properties of photochromic dithienylethenes: by-product formation
Chem. Commun., **(8)**, 747-748 (1999).
- (24) Setsuko Irie, Tadatsugu Yamaguchi, Hiroyuki Nakazumi, Seiya Kobatake, and Masahiro Irie
Radiation-induced coloration of photochromic dithienylethene derivatives

- Bull. Chem. Soc. Jpn.*, **72(5)**, 1139-1142 (1999).
- (25) Seiya Kobatake, Motoki Yamada, Taro Yamada, and Masahiro Irie
Photochromism of 1,2-bis(2-methyl-6-nitro-1-benzothiophen-3-yl)perfluorocyclopentene in a single-crystalline phase: Dichroism of the closed-ring form isomer
J. Am. Chem. Soc., **121(37)**, 8450-8456 (1999).
- (26) Tsuyoshi Kawai, Norio Fukuda, Dieter Gröschl, Seiya Kobatake, and Masahiro Irie
Refractive index change of dithienylethene in bulk amorphous solid phase
Jpn J. Appl. Phys. Part 2, **38(10B)**, L1194-L1196 (1999).
- (27) Taro Yamada, Seiya Kobatake, Keishi Muto, and Masahiro Irie
X-ray crystallographic study on single-crystalline photochromism of bis(2,5-dimethyl-3-thienyl)-perfluorocyclopentene
J. Am. Chem. Soc., **122(8)**, 1589-1592 (2000).
- (28) Masahiro Irie, Thorsten Lifka, Seiya Kobatake, and Nobuo Kato
Photochromism of 1,2-bis(2-methyl-5-phenyl-3-thienyl)perfluorocyclopentene in a single-crystalline phase
J. Am. Chem. Soc., **122(20)**, 4871-4876 (2000).
- (29) Seiya Kobatake, Taro Yamada, and Masahiro Irie
Photochromism of diarylethenes in single-crystalline phases
Mol. Cryst. Liq. Cryst., **344**, 185-190 (2000).
- (30) Kingo Uchida, Eriko Tsuchida, Shinichiro Nakamura, Seiya Kobatake, and Masahiro Irie
Photochromic reactions of diarylethenes with isopropyl groups
Mol. Cryst. Liq. Cryst., **345**, 9-14 (2000).
- (31) Tetsuhiro Kodani, Kenji Matsuda, Taro Yamada, Seiya Kobatake, and Masahiro Irie
Reversible diastereoselective photocyclization of a diarylethene in a single-crystalline phase
J. Am. Chem. Soc., **122(40)**, 9631-9637 (2000).
- (32) Taro Yamada, Seiya Kobatake, and Masahiro Irie
X-ray crystallographic study on single-crystalline photochromism of 1,2-bis(2,5-dimethyl-3-thienyl)perfluorocyclopentene
Bull. Chem. Soc. Jpn., **73(10)**, 2179-2184 (2000).
- (33) Kenji Higashiguchi, Kenji Matsuda, Seiya Kobatake, Taro Yamada, Tsuyoshi Kawai, and Masahiro Irie
Fatigue mechanism of photochromic 1,2-bis(2,5-dimethyl-3-thienyl)perfluorocyclopentene
Bull. Chem. Soc. Jpn., **73(10)**, 2389-2394 (2000).
- (34) Seiya Kobatake, Kingo Uchida, Eriko Tsuchida, and Masahiro Irie
Photochromism of diarylethenes having isopropyl groups at the reactive carbons. Thermal cycloreversion of the closed-ring isomers.
Chem. Lett., **(11)**, 1340-1341 (2000).
- (35) Seiya Kobatake, Katsunori Shibata, Kingo Uchida, and Masahiro Irie
Photochromism of 1,2-bis(2-ethyl-5-phenyl-3-thienyl)perfluorocyclopentene. Conrotatory thermal cycloreversion of the closed-ring isomer.
J. Am. Chem. Soc., **122(49)**, 12135-12141 (2000).
- (36) Tuyoshi Fukaminato, Seiya Kobatake, Tsuyoshi Kawai, and Masahiro Irie
Three-dimensional erasable optical memory using a photochromic diarylethene single crystal as the recording medium
Proc. Japan Acad., Ser. B, **77**, 30-35 (2001).
- (37) Masahiro Irie, Seiya Kobatake, and Masashi Horichi
Reversible surface morphology changes of a photochromic diarylethene single crystal by photoirradiation
Science, **291(5509)**, 1769-1772 (2001).
- (38) Kingo Uchida, Toyokazu Matsuoka, Seiya Kobatake, Tadatsugu Yamaguchi, and Masahiro Irie

- Substituent effect on the photochromic reactivity of bis(2-thienyl)perfluorocyclopentenes
Tetrahedron, **57(21)**, 4559-4565 (2001).
- (39) Atsuhiko Osuka, Daisuke Fujikane, Hideyuki Shinmori, Seiya Kobatake, and Masahiro Irie
Synthesis and photoisomerization of dithienylethene-bridged diporphyrins
J. Org. Chem., **66(11)**, 3913-3923 (2001).
- (40) Katsunori Shibata, Seiya Kobatake, and Masahiro Irie
Extraordinarily low cycloreversion quantum yields of photochromic diarylethenes with methoxy substituents
Chem. Lett., **(7)**, 618-619 (2001).
- (41) Taro Yamada, Keishi Muto, Seiya Kobatake, and Masahiro Irie
Crystal structure-reactivity correlation in single-crystalline photochromism of 1,2-bis(2-methyl-5-phenyl-3-thienyl)perfluorocyclopentene
J. Org. Chem., **66(18)**, 6164-6168 (2001).
- (42) Katsunori Shibata, Keishi Muto, Seiya Kobatake, and Masahiro Irie
Photocyclization/cycloreversion quantum yields of diarylethenes in single crystals
J. Phys. Chem. A, **106(1)**, 209-214 (2002).
- (43) Taro Yamada, Seiya Kobatake, and Masahiro Irie
Single-crystalline photochromism of diarylethene mixtures
Bull. Chem. Soc. Jpn., **75(1)**, 167-173 (2002).
- (44) Teruaki Kaieda, Seiya Kobatake, Hiroshi Miyasaka, Masataka Murakami, Nobuyuki Iwai, Yasushi Nagata, Akira Itaya, and Masahiro Irie
Efficient photocyclization of dithienylethene dimer, trimer and tetramer: quantum yield and reaction dynamics
J. Am. Chem. Soc., **124(9)**, 2015-2024 (2002).
- (45) Kentaro Morimitsu, Katsunori Shibata, Seiya Kobatake, and Masahiro Irie
Thermal cycloreversion reaction of a photochromic dithienylperfluorocyclopentene with *tert*-butoxy substituents at the reactive carbons
Chem. Lett., **(6)**, 572-573 (2002).
- (46) Kentaro Morimitsu, Katsunori Shibata, Seiya Kobatake, and Masahiro Irie
Dithienylethenes with a novel photochromic performance
J. Org. Chem., **67(13)**, 4574-4578 (2002).
- (47) Masakazu Morimoto, Seiya Kobatake, and Masahiro Irie
Multi-colored photochromic crystals of diarylethene mixture
Adv. Mater., **14(15)**, 1027-1029 (2002).
- (48) Dominique Guillaumont, Takao Kobayashi, Katsuya Kanda, Hiroshi Miyasaka, Kingo Uchida, Seiya Kobatake, Katsunori Shibata, Shinichiro Nakamura, and Masahiro Irie
An ab initio MO study of the photochromic reaction of dithienylethenes
J. Phys. Chem. A, **106(31)**, 7222-7227 (2002).
- (49) Minghui Hu, Susumu Kawauchi, Mitsuru Satoh, Jiro Komiyama, Junji Watanabe, Seiya Kobatake, and Masahiro Irie
Two-photon photochromism of two simple chromene derivatives
J. Photochem. Photobiol. A: Chem., **150(1-3)**, 131-141 (2002).
- (50) Seiya Kobatake, Kingo Uchida, Eriko Tsuchida, and Masahiro Irie
Single-crystalline photochromism of diarylethenes: reactivity-structure relationship
Chem. Commun., **(23)**, 2804-2805 (2002).
- (51) Seiya Kobatake, Masakazu Morimoto, Yukako Asano, Akinori Murakami, Shinichiro Nakamura, and Masahiro Irie
Absorption spectra of colored isomer of diarylethene in single crystals
Chem. Lett., **(12)**, 1224-1225 (2002).
- (52) Masakazu Morimoto, Seiya Kobatake, and Masahiro Irie

- Polymorphism of 1,2-bis(2-methyl-5-*p*-methoxyphenyl-3-thienyl)perfluorocyclopentene and photochromic reactivity of the single crystals
Chem. Eur. J., **9(3)**, 621-627 (2003).
- (53) Bunichiro Yamada, Tomoyuki Hirano, and Seiya Kobatake
Copolymerization of methyl α -(chloromethyl)acrylate with styrene accompanied by addition-fragmentation chain transfer
Polym. Bull., **49(5)**, 305-312 (2003).
- (54) Hiroshi Miyasaka, Masataka Murakami, Tadashi Okada, Yasushi Nagata, Akira Itaya, Seiya Kobatake, and Masahiro Irie
Picosecond and femtosecond laser photolysis studies of a photochromic diarylethene derivative: multiphoton gated reaction
Chem. Phys. Lett., **371(1-2)**, 40-48 (2003).
- (55) Yukako Asano, Akinori Murakami, Takao Kobayashi, Seiya Kobatake, Masahiro Irie, Satoshi Yabushita, and Shinichiro Nakamura
Theoretical study on novel quantum yields of dithienylethenes cyclization reactions in crystals
J. Mol. Struct. (Theochem), **625(1-3)**, 227-234 (2003).
- (56) Alexander Goldberg, Akinori Murakami, Katsuya Kanda, Takao Kobayashi, Shinichiro Nakamura, Kingo Uchida, Hiroshi Sekiya, Tuyoshi Fukaminato, Tsuyoshi Kawai, Seiya Kobatake, and Masahiro Irie
Rotational isomerization of dithienylethenes: a study on the mechanism determining quantum yield of cyclization reaction
J. Phys. Chem. A, **107(25)**, 4982-4988 (2003).
- (57) Tuyoshi Fukaminato, Tsuyoshi Kawai, Seiya Kobatake, and Masahiro Irie
Fluorescence of photochromic 1,2-bis(3-methyl-2-thienyl)ethene
J. Phys. Chem. B, **107(33)**, 8372-8377 (2003).
- (58) Kentaro Morimitsu, Seiya Kobatake, Shinichiro Nakamura, and Masahiro Irie
Efficient photocycloreversion reaction of diarylethenes by introduction of cyano substituents to the reactive carbons
Chem. Lett., **32(9)**, 858-859 (2003).
- (59) Masakazu Morimoto, Seiya Kobatake, and Masahiro Irie
Multicolor photochromism of two- and three-component diarylethene crystals
J. Am. Chem. Soc., **125(36)**, 11080-11087 (2003).
- (60) Masakazu Morimoto, Seiya Kobatake, and Masahiro Irie
Aryl-perfluoroaryl interaction in photochromic diarylethene crystals
Crystal Growth & Design, **3(5)**, 847-854 (2003).
- (61) Shizuka Takami, Seiya Kobatake, Tsuyoshi Kawai, and Masahiro Irie
Extraordinarily high thermal stability of the closed-ring isomer of 1,2-bis(5-methyl-2-phenylthiazol-4-yl)perfluorocyclopentene
Chem. Lett., **32(10)**, 892-893 (2003).
- (62) Seiya Kobatake and Masahiro Irie
Synthesis and photochromic reactivity of a diarylethene dimer linked by a phenyl group
Tetrahedron, **59(42)**, 8359-8364 (2003).
- (63) Seiya Kobatake and Masahiro Irie
Synthesis and photochromism of diarylethenes with isopropyl groups at the reactive carbons and long π -conjugated heteroaryl groups
Chem. Lett., **32(11)**, 1078-1079 (2003).
- (64) Masakazu Morimoto, Seiya Kobatake, and Masahiro Irie
Photochromism of diarylethenes in nanolayers of a single crystal
Photochem. Photobiol. Sci., **2(11)**, 1088-1094 (2003).
- (65) Kentaro Morimitsu, Seiya Kobatake, and Masahiro Irie

- Large geometrical structure changes of photochromic diarylethenes upon photoirradiation
Tetrahedron Lett., **45(6)**, 1155-1158 (2004).
- (66) Masakazu Morimoto, Seiya Kobatake, and Masahiro Irie
Crystal engineering of photochromic diarylethene single crystals
Chem. Rec., **4(1)**, 23-38 (2004).
- (67) Seiya Kobatake, Shunpei Kuma, and Masahiro Irie
Single-crystalline photochromism of a diarylethene dimer
Bull. Chem. Soc. Jpn., **77(5)**, 945-951 (2004).
- (68) Seiya Kobatake and Masahiro Irie
Photochromism of furylfulgide in a single-crystalline phase
Chem. Lett., **33(7)**, 904-905 (2004).
- (69) Tadatsugu Yamaguchi, Yuji Fujita, Hiroyuki Nakazumi, Seiya Kobatake, and Masahiro Irie
Photochromic properties of diarylethene derivatives having chryso[b]thiophene rings
Tetrahedron, **60(44)**, 9863-9869 (2004).
- (70) Masataka Murakami, Hiroshi Miyasaka, Tadashi Okada, Seiya Kobatake, and Masahiro Irie
Dynamics and mechanisms of the multiphoton gated photochromic reaction of diarylethene derivatives
J. Am. Chem. Soc., **126(45)**, 14764-14772 (2004).
- (71) Seiya Kobatake, Yoshimichi Matsumoto, and Masahiro Irie
Conformational control of photochromic reactivity in a diarylethene single crystal
Angew. Chem. Int. Ed., **44(14)**, 2148 (2005).
- (72) Kentaro Morimitsu, Seiya Kobatake, and Masahiro Irie
Control of cycloreversion quantum yields of diarylethenes by introduction of substituents at the reactive carbons
Mol. Cryst. Liq. Cryst., **431**, 151-154 (2005).
- (73) Seiya Kobatake, Masakazu Morimoto, and Masahiro Irie
Nanolayered structures in photochromic crystal of 1,2-bis(2-methyl-5-*p*-methoxyphenyl-3-thienyl)-perfluorocyclopentene
Mol. Cryst. Liq. Cryst., **431**, 223-228 (2005).
- (74) Masakazu Morimoto, Seiya Kobatake, and Masahiro Irie
Crystal engineering of photochromic diarylethene derivatives by aryl-perfluoroaryl interaction
Mol. Cryst. Liq. Cryst., **431**, 229-234 (2005).
- (75) Seiya Kobatake, Hiroaki Muto, and Masahiro Irie
Excited state energy migration and photochromic reaction in 1,2-bis(2,4-dimethyl-3-thienyl)-perfluorocyclopentene single crystal
Chem. Lett., **35(1)**, 102-103 (2006).
- (76) Kingo Uchida, Martin Walko, Jaap J. D. de Jong, Shin-ichiro Sukata, Seiya Kobatake, Auke Meetsma, Jan van Esch, and Ben L. Feringa
Diastereoselective cyclization of a dithienylethene switch through single crystal confinement
Org. Biomol. Chem., **4(6)**, 1002-1006 (2006).
- (77) Seiya Kobatake and Hirotsugu Kuratani
Photochromism of diarylethene-functionalized polystyrene with high conversion in a solid-state polymer film
Chem. Lett., **35(6)**, 628-629 (2006).
- (78) Masakazu Morimoto, Seiya Kobatake, and Masahiro Irie
Photochromism of a diarylethene charge-transfer complex: photochemical control of intermolecular charge-transfer interaction
Chem. Commun., **(25)**, 2656-2658 (2006).
- (79) Hirohisa Matsuda, Syoji Ito, Yutaka Nagasawa, Tsuyoshi Asahi, Seiya Kobatake, Hiroshi Masuhara, Masahiro Irie, and Hiroshi Miyasaka

- Higher-order multiphoton imaging by femtosecond near-infrared laser microscope system
J. Photochem. Photobiol. A: Chem., **183**(3), 261-266 (2006).
- (80) Yukihide Ishibashi, Masataka Murakami, Hiroshi Miyasaka, Seiya Kobatake, Masahiro Irie, and Yasushi Yokoyama
Laser multiphoton-gated photochromic reaction of a fulgide derivative
J. Phys. Chem. C, **111**(6), 2730-2737(2007).
- (81) Takuro Hamazaki, Kenji Matsuda, Seiya Kobatake, and Masahiro Irie
Photostimulated crystal lattice change induced by the photochemical ring-opening reaction of diarylethene molecules
Bull. Chem. Soc. Jpn., **80**(2), 365-370 (2007).
- (82) Yukihide Ishibashi, Kensuke Tani, Hiroshi Miyasaka, Seiya Kobatake, and Masahiro Irie
Picosecond laser photolysis study of cycloreversion reaction of a diarylethene derivative in polycrystals: multiphoton-gated reaction
Chem. Phys. Lett., **437**(4-6), 243-247 (2007).
- (83) Seiya Kobatake, Shizuka Takami, Hiroaki Muto, Tomoyuki Ishikawa, and Masahiro Irie
Rapid and reversible shape changes of molecular crystals on photoirradiation
Nature, **446**(7137), 778-781 (2007).
- (84) Seiya Kobatake and Yuko Terakawa
Acid-induced photochromic system switching of diarylethene derivatives between P- and T-types
Chem. Commun., (17), 1698-1700 (2007).
- (85) Shinichiro Nakamura, Takao Kobayashi, Atsushi Takata, Kingo Uchida, Yukako Asano, Akinori Murakami, Alexander Goldberg, Dominique Guillaumont, Satoshi Yokojima, Seiya Kobatake, and Masahiro Irie
Quantum yields and potential energy surfaces: a theoretical study
J. Phys. Org. Chem., **20**(11), 821-829 (2007).
- (86) Senichi Ryo, Yukihide Ishibashi, Masataka Murakami, Hiroshi Miyasaka, Seiya Kobatake, and Masahiro Irie
Multiphoton-gated photochromic reaction of diarylethene derivatives in PMMA solid film
J. Phys. Org. Chem., **20**(11), 953-959 (2007).
- (87) Seiya Kobatake, Shunpei Kuma, and Masahiro Irie
Single-crystalline photochromism of diarylethene dimers bridged by a spiro structure
J. Phys. Org. Chem., **20**(11), 960-967 (2007).
- (88) Daisuke Furukawa, Seiya Kobatake, and Akikazu Matsumoto
Direct observation of change in the molecular structure of benzyl (Z,Z)-muconate during photoisomerization in the solid state
Chem. Commun., (1), 55-57 (2008).
- (89) Masakazu Morimoto, Seiya Kobatake, and Masahiro Irie
Absolute asymmetric photocyclization in chiral diarylethene co-crystals with octafluoronaphthalene
Chem. Commun., (3), 335-337 (2008).
- (90) Kenichiro Saita, Seiya Kobatake, Tuyoshi Fukaminato, Shinkoh Nanbu, Masahiro Irie, and Hiroshi Sekiya
Raman spectroscopic study on isomers of photochromic 1,2-bis(2,5-dimethyl-3-thienyl)perfluorocyclopentene in crystal and stability of the closed-ring forms in the open-ring forms
Chem. Phys. Lett., **454**(1-3), 42-48 (2008).
- (91) Hiroyasu Nishi and Seiya Kobatake
Reduction reaction to thiol group of dithiobenzoate end group in polystyrene polymerized by reversible addition-fragmentation chain transfer
Chem. Lett., **37**(6), 630-631 (2008).
- (92) Hiroyasu Nishi and Seiya Kobatake
Photochromism and optical property of gold nanoparticles covered with low-polydispersity

diarylethene polymers

- Macromolecules*, **41(11)**, 3995-4002 (2008).
- (93) Kensuke Tani, Yukihide Ishibashi, Hiroshi Miyasaka, Seiya Kobatake, and Masahiro Irie
Dynamics of cyclization, cycloreversion, and multiphoton-gated reaction of a photochromic diarylethene derivative in crystalline phase
J. Phys. Chem. C, **112(30)**, 11150-11157 (2008).
- (94) Seiya Kobatake and Itsuka Yamashita
Synthesis of photochromic diarylethene polymers for a write-by-light/erase-by-heat recording system
Tetrahedron, **64(32)**, 7611-7618 (2008).
- (95) Yukihide Ishibashi, Masayuki Mukaida, Magnus Falkenström, Hiroshi Miyasaka, Seiya Kobatake, and Masahiro Irie
One- and multi-photon cycloreversion reaction dynamics of diarylethene derivative with asymmetrical structure, as revealed by ultrafast laser spectroscopy
Phys. Chem. Chem. Phys., **11**, 2640-2648 (2009).
- (96) Seiya Kobatake, Hiroyuki Imagawa, Hidenori Nakatani, and Seiichiro Nakashima
The irreversible thermo-bleaching function of a photochromic diarylethene having trimethylsilyl groups
New J. Chem., **33(6)**, 1362-1367 (2009).
- (97) Norikazu Izumi, Naoki Nishikawa, Satoshi Yokojima, Yuko Kojima, Shinichiro Nakamura, Seiya Kobatake, Masahiro Irie, and Kingo Uchida
Photo-induced reversible topographical changes of photochromic dithienylethene microcrystalline surfaces
New J. Chem., **33(6)**, 1324-1326 (2009).
- (98) Yukihide Ishibashi, Tetsuro Katayama, Chikashi Ohta, Seiya Kobatake, Masahiro Irie, Yasushi Yokoyama, and Hiroshi Miyasaka
Ultrafast laser spectroscopic study on photochromic cycloreversion dynamics in fulgide derivatives: one-photon and multiphoton-gated reactions
New J. Chem., **33(6)**, 1409-1419 (2009).
- (99) Seiya Kobatake, Yuko Terakawa, and Hiroyuki Imagawa
Solvent effect on photochromism of a dithienylperfluorocyclopentene having diethylamino group
Tetrahedron, **65(31)**, 6104-6108 (2009).
- (100) Hiroyasu Nishi, Tsuyoshi Asahi, and Seiya Kobatake
Light-controllable surface plasmon resonance absorption of gold nanoparticles covered with photochromic diarylethene polymers
J. Phys. Chem. C, **113(40)**, 17359-17366 (2009).
- (101) Kingo Uchida, Hibiki Sumino, Yumiko Shimobayashi, Yousuke Ushioji, Atsushi Takata, Yuko Kojima, Satoshi Yokojima, Seiya Kobatake, and Shinichiro Nakamura
Unusual photochromic behavior of C3-methoxy-substituted bis(2-thienyl)perfluorocyclopentene
Bull. Chem. Soc. Jpn., **82(11)**, 1441-1446 (2009).
- (102) Yukihide Ishibashi, Katsuki Okuno, Chikashi Ota, Toshiyuki Umesato, Tetsuro Katayama, Masataka Murakami, Seiya Kobatake, Masahiro Irie, and Hiroshi Miyasaka
Multiphoton-gated cycloreversion reactions of photochromic diarylethene derivatives with low reaction yields upon one-photon visible excitation
Photochem. Photobiol. Sci., **9(2)**, 172-180 (2010).
- (103) Daichi Kitagawa, Itsuka Yamashita, and Seiya Kobatake
Photoinduced micropatterning by polymorphic crystallization of a photochromic diarylethene in a polymer film
Chem. Commun., **46(21)**, 3723-3725 (2010).
- (104) Hiroyasu Nishi and Seiya Kobatake

- Fabrication and photochromism of high-density diarylethene monolayer immobilized on a quartz-glass substrate
Chem. Lett., **39(6)**, 638-639 (2010).
- (105) Natsuko Nishizawa, Daisuke Furukawa, Seiya Kobatake, and Akikazu Matsumoto
Crystal phase transition and solid-state photoisomerization of benzyl (Z,Z)-muconate polymorphs studied by direct observation of crystal structure change
Cryst. Growth Des., **10(7)**, 3203-3210 (2010).
- (106) Daichi Kitagawa and Seiya Kobatake
Photochromism of a diarylethene with methoxymethyl groups at reactive carbons: Thermal irreversible reaction of the closed-ring isomer
Chem. Lett., **40(1)**, 93-95 (2011).
- (107) Daichi Kitagawa, Kyohei Sasaki, and Seiya Kobatake
Correlation between steric substituent constants and thermal cycloreversion reactivity of diarylethene closed-ring isomers
Bull. Chem. Soc. Jpn., **84(2)**, 141-147 (2011).
- (108) Seiya Kobatake, Shotaro Imao, Yosuke Yamashiro, and Yuko Terakawa
Photoswitching of an alcohol-sensitive photochromic diarylethene
Tetrahedron Lett., **52(16)**, 1905-1908 (2011).
- (109) Yukihide Ishibashi, Mika Fujiwara, Toshiyuki Umesato, Hisayuki Saito, Seiya Kobatake, Masahiro Irie, Hiroshi Miyasaka
Cyclization reaction dynamics of a photochromic diarylethene derivative as revealed by femtosecond to microsecond time-resolved spectroscopy
J. Phys. Chem. C, **115(10)**, 4265-4272 (2011).
- (110) Hiroyasu Nishi, Tsuyoshi Asahi, and Seiya Kobatake
Enhanced one-photon cycloreversion reaction of diarylethenes near individual gold nanoparticles
J. Phys. Chem. C, **115(11)**, 4564-4570 (2011).
- (111) Seiya Kobatake, Hiroki Hasegawa, and Kentaro Miyamura
High-convertible photochromism of a diarylethene single crystal accompanying the crystal shape deformation
Crystal Growth & Design, **11(4)**, 1223-1229 (2011).
- (112) Hiroyasu Nishi, Tsuyoshi Asahi, and Seiya Kobatake
Enhanced photocycloreversion reaction of diarylethene polymers attached to gold nanoparticles in the solid state
J. Photochem. Photobiol. A: Chem., **221(2-3)**, 256-260 (2011).
- (113) Daichi Kitagawa, Itsuka Yamashita, and Seiya Kobatake
Control of surface wettability and photomicro patterning with a polymorphic diarylethene crystal upon photoirradiation
Chem. Eur. J., **17(35)**, 9825-9831 (2011).
- (114) Hiroyasu Nishi, Tomoko Namari, and Seiya Kobatake
Photochromic polymers bearing various diarylethene chromophores as the pendant: Synthesis, optical properties, and multicolor photochromism
J. Mater. Chem., **21(43)**, 17249-17258 (2011).
- (115) Hiroyasu Nishi and Seiya Kobatake
Facile preparation of gold nanoparticle with diarylethene polymers by disodium malate and its photoreversible optical properties
Dyes and Pigments, **92(2)**, 847-853 (2012).
- (116) Yukihide Ishibashi, Toshiyuki Umesato, Seiya Kobatake, Masahiro Irie, and Hiroshi Miyasaka
Femtosecond laser photolysis studies on temperature dependence of cyclization and cycloreversion reactions of a photochromic diarylethene derivative
J. Phys. Chem. C, **116(7)**, 4862-4869 (2012).

- (117) Hiroyasu Nishi, Tsuyoshi Asahi, and Seiya Kobatake
Plasmonic enhancement of gold nanoparticles on photocycloreversion reaction of diarylethene derivatives depending on particle size, distance from the particle surface, and irradiation wavelength
Phys. Chem. Chem. Phys., **14(14)**, 4898-4905 (2012).
- (118) Daichi Kitagawa and Seiya Kobatake
Morphology, wettability and photomicro patterning of superhydrophobic surface with high adhesive force by crystal growth of a photochromic diarylethene
Chem. Sci., **3(5)**, 1445-1449 (2012).
- (119) Hiroyasu Nishi, Tsuyoshi Asahi, Seiya Kobatake
Plasmonic enhancement of a photocycloreversion reaction of a diarylethene derivative using individually dispersed silver nanoparticles
Chem. Phys. Chem., **13(16)**, 3616-3621 (2012).
- (120) Shotaro Imao, Hiroyasu Nishi, Seiya Kobatake
Thermo- and photoresponsive reversible changes in localized surface plasmon resonance of gold nanoparticles covered by poly(*N*-isopropylacrylamide) with photochromic diarylethene end group
J. Photochem. Photobiol. A: Chem., **252**, 37-45 (2013).
- (121) Hiroaki Shoji, Daichi Kitagawa, Seiya Kobatake
Systematic study on the thermal cycloreversion reactivity of diarylethenes with alkoxy and alkyl groups at the reactive carbons
Res. Chem. Intermed., **39(1)**, 279-289 (2013).
- (122) Hiroaki Shoji, Seiya Kobatake
Thermal bleaching reactions of photochromic diarylethenes with thiophene-*S,S*-dioxide for a light-starting irreversible thermosensor
Chem. Commun., **49(23)**, 2362-2364 (2013).
- (123) Daichi Kitagawa, Hiroyasu Nishi, Seiya Kobatake
Photoinduced twisting of a photochromic diarylethene crystal
Angew. Chem. Int. Ed., **52(35)**, 9320-9322 (2013).
- (124) Daichi Kitagawa, Seiya Kobatake
Crystal thickness dependence of photoinduced crystal bending of 1,2-bis(2-methyl-5-(4-(1-naphthoyloxymethyl)phenyl)-3-thienyl)perfluorocyclopentene
J. Phys. Chem. C, **117(40)**, 20887-20892 (2013).
- (125) Daichi Kitagawa, Seiya Kobatake
Thermodynamic phase transition through crystal-to-crystal process of photochromic 1,2-bis(5-phenyl-2-propyl-3-thienyl)perfluorocyclopentene
Chem. Asian J., **9(1)**, 289-293 (2014).
- (126) Hiroaki Shoji, Daichi Kitagawa, Seiya Kobatake
Alkyl substituent effects in photochemical and thermal reactions of photochromic thiophene-*S,S*-dioxidized diarylethenes
New J. Chem., **38(3)**, 933-941 (2014).
- (127) Daichi Kitagawa, Seiya Kobatake
Crystal thickness dependence of photoinduced crystal bending of 1-(5-methyl-2-(4-(*p*-vinylbenzoyloxymethyl)phenyl)-4-thiazolyl)-2-(5-methyl-2-phenyl-4-thiazolyl)perfluorocyclopentene
Photochem. Photobiol. Sci., **13(5)**, 764-769 (2014).
- (128) Ryuta Seno, Seiya Kobatake
Synthesis and characterization of amphiphilic silica nanoparticles covered by block copolymers branching photochromic diarylethene moieties on side chain
Dyes and Pigments, **114(1)**, 166-174 (2015).
- (129) Daichi Kitagawa, Seiya Kobatake
Photoreversible current ON/OFF switching by photoinduced bending of gold-coated diarylethene crystals

- Chem. Commun.*, **51(21)**, 4421-4424 (2015).
- (130) Chika Iwaihara, Daichi Kitagawa, Seiya Kobatake
Polymorphic crystallization and thermodynamic phase transition between the polymorphs of a photochromic diarylethene
Cryst. Growth Des., **15(4)**, 2017-2023 (2015).
- (131) Emi Sugata, Seiya Kobatake
Synthesis and optical properties of gold nanoparticle networks cross-linked with chain-length-controlled polymers
RSC Adv., **5(44)**, 34704-34708 (2015).
- (132) Syoji Ito, Yuhei Taga, Kengo Hiratsuka, Satoshi Takei, Daichi Kitagawa, Seiya Kobatake, Hiroshi Miyasaka
Restricted diffusion of guest molecules in polymer thin films on solid substrates as revealed by three-dimensional single-molecule tracking
Chem. Commun., **51(72)**, 13756-14759 (2015).
- (133) Daichi Kitagawa, Rika Tanaka, Seiya Kobatake
Dependence of photoinduced bending behavior of diarylethene crystals on irradiation wavelength of ultraviolet light
Phys. Chem. Chem. Phys., **17(41)**, 27300-27305 (2015).
- (134) Daichi Kitagawa, Chika Iwaihara, Hiroyasu Nishi, Seiya Kobatake
Quantitative evaluation of photoinduced bending speed of diarylethene crystals
Crystals, **5(4)**, 551-561 (2015).
- (135) Yukihide Ishibashi, Toshiyuki Umesato, Mika Fujiwara, Kanako Une, Yusuke Yoneda, Hikaru Sotome, Tatsuro Katayama, Seiya Kobatake, Tsuyoshi Asahi, Masahiro Irie, Hiroshi Miyasaka
Solvent polarity dependence of photochromic reactions of a diarylethene derivative as revealed by steady-state and transient spectroscopies
J. Phys. Chem. C, **120(2)**, 1170-1177 (2016).
- (136) Koki Tanaka, Daichi Kitagawa, Seiya Kobatake
Photochromic reaction behavior and thermal stability of thiophene-S,S-dioxidized diarylethenes having a benzofuryl group
Tetrahedron, **72(18)**, 2364-2368 (2016).
- (137) Daichi Kitagawa, Rika Tanaka, Seiya Kobatake
Photoinduced stepwise bending behavior of photochromic diarylethene crystals
CrystEngComm, **18(38)**, 7236-7240 (2016).
- (138) Daichi Kitagawa, Tomohiro Okuyama, Rika Tanaka, Seiya Kobatake
Photoinduced rapid and explosive fragmentation of diarylethene crystals having urethane bonding
Chem. Mater., **28(14)**, 4889-4892 (2016).
- (139) Tatsumoto Nakahama, Daichi Kitagawa, Hikaru Sotome, Syoji Ito, Hiroshi Miyasaka, Seiya Kobatake
Optical properties and solvatochromism of fluorene derivatives bearing S,S-dioxidized thiophene
Photochem. Photobiol. Sci., **15(10)**, 1254-1263 (2016).
- (140) Daichi Kitagawa, Tatsumoto Nakahama, Katsuya Mutoh, Yoichi Kobayashi, Jiro Abe, Hikaru Sotome, Syoji Ito, Hiroshi Miyasaka, Seiya Kobatake
Polymorphs of a diarylethene that exhibits strong emission and direct visualization of polymorphic phase transition process by fluorescence color change
Dyes Pigm., **139**, 233-238 (2017).
- (141) Tatsumoto Nakahama, Takayoshi Mukaiyama, Daichi Kitagawa, Seiya Kobatake
Solvent effect of fluorescence on/off switching of diarylethene linked to excited-state intramolecular proton transfer fluorophore
Res. Chem. Intermed., **43(10)**, 5321-5336 (2017).

- (142) Tatsumoto Nakahama, Daichi Kitagawa, Hikaru Sotome, Syoji Ito, Hiroshi Miyasaka, Seiya Kobatake
Fluorescence On/Off switching in polymers bearing diarylethene and fluorene in their side chains
J. Phys. Chem. C, **121(11)**, 6272-6281 (2017).
- (143) Daichi Kitagawa, Koki Tanaka, Seiya Kobatake
Thiophene-*S,S*-dioxidized diarylethenes for light-starting irreversible thermosensors that can detect a rise in heat at low temperature
J. Mater. Chem. C, **5(25)**, 6210-6215 (2017).
- (144) Sanae Ishida, Tuyoshi Fukaminato, Daichi Kitagawa, Seiya Kobatake, Sunnam Kim, Tomonari Ogata, Seiji Kurihara
Wavelength-selective and high-contrast multicolour fluorescence photoswitching in a mixture of photochromic nanoparticles
Chem. Commun., **53(59)**, 8268-8271 (2017).
- (145) Hikaru Sotome, Tatsuhiko Nagasaka, Kanako Une, Chiaki Okui, Yukihide Ishibashi, Kenji Kamada, Seiya Kobatake, Masahiro Irie, Hiroshi Miyasaka
Efficient cycloreversion reaction of a diarylethene derivative in higher excited states attained by off-resonant simultaneous two-photon absorption
J. Phys. Chem. Lett., **8**, 3272-3276 (2017).
- (146) Katsuya Shimizu, Seiya Kobatake
Synthesis and optical properties of fluorescent switchable silica nanoparticles covered with copolymers consisting of diarylethene and fluorene derivatives
ChemistrySelect, **2(20)**, 5445-5452 (2017).
- (147) Akira Hirano, Takuya Hashimoto, Daichi Kitagawa, Kenji Kono, Seiya Kobatake
Dependence of photoinduced bending behavior of diarylethene crystals on ultraviolet irradiation power
Cryst. Growth Des., **17(9)**, 4819-4825 (2017).
- (148) Daichi Kitagawa, Kaito Kawasaki, Rika Tanaka, Seiya Kobatake
Mechanical behavior of molecular crystals induced by combination of photochromic reaction and reversible single-crystal-to-single-crystal phase transition
Chem. Mater., **29(17)**, 7524-7532 (2017).
- (149) Hikaru Sotome, Tatsuhiko Nagasaka, Kanako Une, Soichiro Morikawa, Tetsuro Katayama, Seiya Kobatake, Masahiro Irie, Hiroshi Miyasaka
Cycloreversion reaction of a diarylethene derivative at higher excited states attained by two-color two-photon femtosecond pulsed excitation
J. Am. Chem. Soc., **139(47)**, 17159-17167 (2017).
- (150) Tatsumoto Nakahama, Daichi Kitagawa, Hikaru Sotome, Syoji Ito, Hiroshi Miyasaka, Seiya Kobatake
Solid-state fluorescence behavior induced by photochemical ring-opening reaction of 1,2-bis(3-methyl-5-phenyl-2-thienyl)perfluorocyclopentene
Bull. Chem. Soc. Jpn., **91(2)**, 153-157 (2018).
- (151) Fei Tong, Daichi Kitagawa, Xinning Dong, Seiya Kobatake, Christopher J. Bardeen
Photomechanical motion of diarylethene molecular crystal nanowires
Nanoscale, **10(7)**, 3393-3398 (2018).
- (152) Tatsumoto Nakahama, Daichi Kitagawa, Hikaru Sotome, Tuyoshi Fukaminato, Syoji Ito, Hiroshi Miyasaka, Seiya Kobatake
Fluorescence On/Off switching in nanoparticles consisting of two types of diarylethenes
ACS Omega, **3(2)**, 2374-2382 (2018).
- (153) Daichi Kitagawa, Hajime Tsujioka, Fei Tong, Xinning Dong, Christopher J. Bardeen, Seiya Kobatake
Control of photomechanical crystal twisting by illumination direction

- J. Am. Chem. Soc.*, **140**(12), 4208-4212 (2018).
- (154) Tatsumoto Nakahama, Daichi Kitagawa, Hikaru Sotome, Syoji Ito, Hiroshi Miyasaka, Seiya Kobatake
Crystallization-induced emission of 1,2-bis(3-methyl-5-(4-alkylphenyl)-2-thienyl)perfluorocyclopentenes: A mechanical and thermal recording system
Dyes Pigm., **160**, 450-456 (2019).
- (155) Katsuya Shimizu, Daichi Kitagawa, Seiya Kobatake
Solid emission color tuning of polymers consisting of BODIPY and styrene in various ratios
Dyes Pigm., **161**, 341-346 (2019).
- (156) Xinning Dong, Fei Tong, Kerry M. Hanson, Rabih O. Al-Kaysi, Daichi Kitagawa, Seiya Kobatake, Christopher J. Bardeen
Hybrid Organic-Inorganic Photon-Powered Actuators Based on Aligned Diarylethene Nanocrystals
Chem. Mater., **31**(3), 1016-1022 (2019).
- (157) Daichi Kitagawa, Tatsumoto Nakahama, Yoshihiro Nakai, Seiya Kobatake
1,2-Diarylbenzene as Fast T-type Photochromic Switch
J. Mater. Chem. C, **7**(10), 2865-2870 (2019).
- (158) Hikaru Sotome, Daichi Kitagawa, Tatsumoto Nakahama, Syoji Ito, Seiya Kobatake, Masahiro Irie, Hiroshi Miyasaka
Cyclization reaction dynamics of an inverse type diarylethene derivative as revealed by time-resolved absorption and fluorescence spectroscopies
Phys. Chem. Chem. Phys., **21**(17), 8623-8632 (2019).
- (159) Syogo Noda, Seiju Hasegawa, Hiroyuki Hamada, Seiya Kobatake, Kohei Imura
Plasmon enhanced optical responses of diarylethene molecules adsorbed on gold nanorods
Chem. Lett., **48**(6), 537-540 (2019).
- (160) Akira Hirano, Daichi Kitagawa, Seiya Kobatake
Photomechanical bending behavior of photochromic diarylethene crystals induced under polarized light
CrystEngComm, **21**(15), 2495-2501 (2019).
- (161) Sanae Ishida, Daichi Kitagawa, Seiya Kobatake, Sunnam Kim, Seiji Kurihara, Tuyoshi Fukaminato
Efficient "turn-off" fluorescence photoswitching in a highly fluorescent diarylethene single crystal
Chem. Commun., **55**(40), 5681-5684 (2019).
- (162) Kohei Morimoto, Hajime Tsujioka, Daichi Kitagawa, Seiya Kobatake
Photoreversible interference color modulation to multicolor in photochromic molecular crystals
Bull. Chem. Soc. Jpn., **92**(8), 1299-1304 (2019).
- (163) Yuta Sato, Daichi Kitagawa, Seiya Kobatake
Molecular design for a write-by-light/erase-by-heat recording system using photochromic diarylethenes with thermal cycloreversion
Tetrahedron, **75**(35), 130487 (7 pages) (2019).
- (164) Yuya Seto, Rie Yamada, Daichi Kitagawa, DaeGwi Kim, Seiya Kobatake
Photoluminescence ON/OFF switching of CdSe/ZnS core/shell quantum dots coated with diarylethene ligands
Chem. Lett., **48**(11), 1394-1397 (2019).
- (165) Tatsumoto Nakahama, Daichi Kitagawa, Seiya Kobatake
Tuning of optical properties and thermal cycloreversion reactivity of photochromic diarylbenzene by introducing electron-donating substituents
J. Phys. Chem. C, **123**(51), 31212-31218 (2019).
- (166) Xinning Dong, Tianyi Guo, Daichi Kitagawa, Seiya Kobatake, Peter Palffy-Muhoray, Christopher J. Bardeen
Effects of template and molecular nanostructure on the performance of organic-inorganic photomechanical actuator membranes

- Adv. Funct. Mater.*, **30**(2), 1902396 (9 pages) (2020).
- (167) Katsuya Shimizu, Remi Metivier, Seiya Kobatake
Synthesis and fluorescence on/off switching of hyperbranched polymers having diarylethene at the branching point
J. Photochem. Photobiol. A: Chem., **390**, 112341 (8 pages) (2020).
- (168) Hikaru Sotome, Kanako Une, Tatsuhiko Nagasaka, Seiya Kobatake, Masahiro Irie, Hiroshi Miyasaka
A dominant factor of the cycloreversion reactivity of diarylethene derivatives as revealed by femtosecond time-resolved absorption spectroscopy
J. Chem. Phys., **152**(3), 034301 (9 pages) (2020).
- (169) Katsuya Shimizu, Arisa Okuma, Shiho Katsumi, Fuyuki Ito, Seiya Kobatake
Synthesis and multicolor emission properties of polystyrene with difluoroboron avobenzene complexes at side chains
Dyes and Pigments, **177**, 108283 (7 pages) (2020).
- (170) Ranita Samanta, Daichi Kitagawa, Amit Mondal, Manjima Bhattacharya, Mari Annadhasan, Saikat Mondal, Rajadurai Chandrasekar, Seiya Kobatake, C. Malla Reddy
Mechanical actuation and patterning of rewritable crystalline monomer-polymer heterostructures via topochemical polymerization in a dual-responsive photochromic organic material
ACS Appl. Mater. Interf., **12**(14), 16856-16863 (2020).
- (171) Daichi Kitagawa, Naoko Takahashi, Tatsumoto Nakahama, Seiya Kobatake
Improving photosensitivity without changing thermal reactivity in photochromic diarylbenzenes based on accurate prediction by DFT calculations
Photochem. Photobiol. Sci., **19**(5), 644-653 (2020).
- (172) Shota Hamatani, Daichi Kitagawa, Tatsumoto Nakahama, Seiya Kobatake
Enhancement of coloring under ultraviolet irradiation in photochromic diarylbenzenes
Tetrahedron Lett., **61**(24), 151968 (5 pages) (2020).
- (173) Kohei Morimoto, Hajime Tsujioka, Daichi Kitagawa, Seiya Kobatake
Photoreversible birefringence change of diarylethene single crystals as revealed by change in molecular polarizability anisotropy
J. Phys. Chem. A, **124**(23), 4732-4741 (2020).
- (174) Yukihide Ishibashi, Shoki Nakai, Keisuke Masuda, Daichi Kitagawa, Seiya Kobatake, Tsuyoshi Asahi
Nanosecond laser photothermal effect-triggered amplification of photochromic reactions in diarylethene nanoparticles
Chem. Commun., **56**(52), 7088-7091 (2020).
- (175) Hikaru Sotome, Hajime Okajima, Tatsuhiko Nagasaka, Yuka Tachii, Akira Sakamoto, Seiya Kobatake, Masahiro Irie, Hiroshi Miyasaka
Geometrical evolution and formation of the photoproduct in the cycloreversion reaction of a diarylethene derivative probed with molecular vibrations
ChemPhysChem, **21**(14), 1524-1530 (2020).
- (176) Nanoka Yano, Mitsuaki Yamauchi, Daichi Kitagawa, Seiya Kobatake, Sadahiro Masuo
Photoluminescence ON/OFF switching of a single colloidal quantum dot using photochromic diarylethene
J. Phys. Chem. C, **124**(31), 17423-17429 (2020).
- (177) Shota Hamatani, Daichi Kitagawa, Seiya Kobatake
Fast T-type photochromic crystals of diarylbenzene
J. Phys. Chem. C, **125**(8), 4588-4594 (2021).
- (178) Takuya Higashiguchi, Daichi Kitagawa, Seiya Kobatake
Anisotropic bending and twisting behaviour of a twin crystal composed of a diarylethene
CrystEngComm, **23**(34), 5795-5800 (2021).
- (179) Masato Tamaoki, Daichi Kitagawa, Seiya Kobatake

- Light-driven rapid peeling of photochromic diarylethene single crystals
Cryst. Growth Des., **21**(5), 3093-3099 (2021).
- (180) Rikuto Maegawa, Daichi Kitagawa, Shota Hamatani, Seiya Kobatake
Rational design of photochromic diarylbenzene with both high photoreactivity and fast thermal back reactivity
New J. Chem., **45**(40), 18969-18975 (2021).
- (181) Kohei Morimoto, Daichi Kitagawa, Fei Tong, Kevin Chalek, Leonard J. Mueller, Christopher J. Bardeen, Seiya Kobatake
Correlating reaction dynamics and size change during the photomechanical transformation of 9-methylantracene single crystals
Angew. Chem. Int. Ed., **61**(2), e202114089 (10 pages) (2022).
- (182) Syoji Ito, Kengo Hiratsuka, Satoshi Takei, Hiroyasu Nishi, Daichi Kitagawa, Seiya Kobatake, Hiroshi Miyasaka
Spatial distribution of single guest molecules along thickness of thin films of poly(2-hydroxyethyl acrylate)
Photochem. Photobiol. Sci., **21**, 175-184 (2022).
- (183) Shota Hamatani, Daichi Kitagawa, Rikuto Maegawa, Seiya Kobatake
Photochromic behavior of diarylbenzene nanoparticles prepared by top-down and bottom-up approaches
Materials Advances, **3**(2), 1280-1285 (2022).
- (184) Ryotaro Miyamoto, Daichi Kitagawa, Seiya Kobatake
Fatigue resistance of photochromic diarylethene in the presence of cyclodextrins with different pore sizes
Bull. Chem. Soc. Jpn., 95(4), 639-645 (2022).

総説

- (1) Bunichiro Yamada and Seiya Kobatake
Radical polymerization, co-polymerization, and chain transfer of α -substituted acrylic esters
Prog. Polym. Sci., **19**(6), 1089-1131 (1994).
- (2) Bunichiro Yamada, David G. Westmoreland, Seiya Kobatake, and Osamu Konosu
ESR spectroscopic studies of radical polymerization
Prog. Polym. Sci., **24**(4), 565-630 (1999).
- (3) Seiya Kobatake and Masahiro Irie
Photochromism
Annual Reports Prog. Chem., Section C, **99**, 277-313 (2003).
- (4) Seiya Kobatake and Masahiro Irie
Single-crystalline photochromism of diarylethenes
Bull. Chem. Soc. Jpn. (Award Accounts), **77**(2), 195-210 (2004).
- (5) Shinichiro Nakamura, Satoshi Yokojima, Kingo Uchida, Tsuyoshi Tsujioka, Alexander Goldberg, Akinori Murakami, Keiko Shinoda, Masayoshi Mikami, Takao Kobayashi, Seiya Kobatake, Kenji Matsuda, and Masahiro Irie
Theoretical investigation on photochromic diarylethene: a short review
J. Photochem. Photobiol. A: Chem., **200**(1), 10-18 (2008).
- (6) Masahiro Irie, Tsuyoshi Fukaminato, Kenji Matsuda, Seiya Kobatake
Photochromism of diarylethene molecules and crystals: Memories, switches, and actuators
Chem. Rev., **114**(24), 12174-12277 (2014).
- (7) Daichi Kitagawa, Seiya Kobatake
Strategy for molecular design of photochromic diarylethenes having thermal functionality
Chem. Rec., **16**(4), 2005-2015 (2016).

- (8) Daichi Kitagawa, Christopher J. Bardeen, Seiya Kobatake
(9) Symmetry breaking and photomechanical behavior of photochromic organic crystals
Symmetry, **12(9)**, 1478 (16 pages) (2020).

解説

- (1) 小島誠也・入江正浩
光で結晶が伸び縮みする？- フォトクロミズムの新たな可能性
化学, **56(11)**, 19-24 (2001).
- (2) 入江正浩・小島誠也
結晶のフォトクロミズム
日本結晶学会誌, **44(1)**, 61-64 (2002).
- (3) 小島誠也・入江正浩
ジアリールエテンの単結晶フォトクロミズム
化学工業, **(7)**, 485-490 (2002).
- (4) 小島誠也・入江正浩
フォトクロミック分子材料のナノ加工
精密工学会誌, **69(2)**, 174-177 (2003).
- (5) 小島誠也
光によりフルカラーに色が変わる有機分子単結晶
化学工業, **58(3)**, 201-206 (2007).
- (6) 小島誠也・入江正浩
光で屈伸・屈曲するフォトクロミック分子結晶
日本結晶学会誌, **49(4)**, 238-243 (2007).
- (7) 小島誠也・入江正浩
光で形を変える分子結晶—超小型アクチュエーターの誕生
化学, **63(2)**, 32-36 (2008).
- (8) 小島誠也・入江正浩
光に応答して可逆に変形する有機結晶
化学と工業, **61(5)**, 506-509 (2008).
- (9) 高見静香・小島誠也・入江正浩
光駆動分子結晶アクチュエーター
光化学, **39(2)**, 72-77 (2008).
- (10) 小島誠也
光応答性有機固体材料の物性制御
有機結晶部会ニュースレター, **23**, 128-129 (2008).
- (11) 石橋千英・小島誠也・横山泰・入江正浩・宮阪博
レーザー多光子吸収で探るフォトクロミック分子の新たな性質
レーザー研究, **38(2)**, 90-95 (2010).
- (12) 小島誠也
光機能性高分子・金ナノ粒子複合体の設計と物性
機能材料, **30(8)**, 59-66 (2010).
- (13) 小島誠也・北川大地
フォトクロミックジアリールエテンの光異性化を利用した微細結晶化パターンニング
化学工業, **62(4)**, 313-317 (2011).
- (14) 小島誠也
ジアリールエテン分子結晶を用いた光駆動アクチュエーター
光学, **41(2)**, 66-70 (2012).
- (15) 池田富樹・内田欣吾・河合 壯・小島誠也・深港 豪・松田建児・宮坂 博・山田容子

座談会「入江正浩先生の研究と人」

光化学, **46(1)**, 5-20 (2015).

- (16) 小島誠也
光応答性フォトクロミック材料の低温温度センサーへの応用
コンバーテック, 2015年12月号, 82-85 (2015).
- (17) S. Kobatake
Applying photoresponsive photochromic materials to light-starting thermosensors
Convertech & e-Print, **6(2)**, 57-61 (2016).
- (18) 小島誠也
研究室紹介
フォトポリマー懇話会 ニュースレター, **78**, 3-4 (2017).
- (19) 北川大地・小島誠也
光駆動マイクロマシンのための光応答性分子結晶
光化学, **48(2)**, 54-60 (2017).
- (20) 小島誠也
熱的相転移を伴う光誘起結晶形状変形【Division Topics, 有機結晶】
化学と工業, **71(1)**, 25 (2018).
- (21) 北川大地・小島誠也
光と熱に応答して形が変わる有機結晶
化学工業, **69(4)**, 251-257 (2018).
- (22) 小島誠也
光照射方向に依存してさまざまな形に変形する有機結晶
光学, **48(2)**, 53-58 (2019).
- (23) 小島誠也
光機能性フォトクロミック材料の機能創出
化学工学, **83(11)**, 699-702 (2019).

著書(分担)

- (1) 小島誠也
有機フォトクロミック結晶材料 (第7章), 新規クロミック材料の設計・機能・応用
シーエムシー出版, 88-97 (2005).
- (2) 小島誠也・入江正浩
フォトクロミック材料 ―単結晶における分子内反応― (第17章), 有機結晶材料の最新
技術
シーエムシー出版, 187-197 (2005).
- (3) 小島誠也
有機フォトクロミック化合物を用いたリライタブルフルカラー表示材料(第5章・第1節),
最新『機能性色素』大全集
技術情報協会, 151-164 (2007).
- (4) 小島誠也・森本正和・入江正浩
光機能性有機分子結晶 (第3章・第2節・16), 超分子サイエンス&テクノロジー
―基礎からイノベーションまで―, 国武豊喜監修
(株)エヌ・ティー・エス, 657-666 (2009).
- (5) Seiya Kobatake, Masahiro Irie
Morphology Changes of Photochromic Single Crystals (Chapter 23), *Molecular Nano Dynamics* Vol.
2, Eds. by H. Fukumura, M. Irie, Y. Iwasawa, H. Masuhara, K. Uosaki
Wiley-VCH, pp. 443-457 (2009).
- (6) 入江正浩・小島誠也
最先端材料システム One Point (第8巻) フォトクロミズム (第2章 2.4), 高分子学会[編
集], 共立出版, 42-52 (2012).

- (7) Seiya Kobatake, Daichi Kitagawa
Photoinduced mechanical motion of photochromic crystalline materials (Chapter 27), *Advances in Organic Crystal Chemistry, Comprehensive Reviews 2015*, Eds. by R. Tamura, M. Miyata Springer, pp. 533-547 (2015).
- (8) 小島誠也
光環化によるフェナントレン同族体ならびにフォトクロミック化合物の合成 (27.2.2)
有機合成実験法ハンドブック 第2版, 有機合成化学協会編, 丸善出版, pp. 976-980 (2015).
- (9) 小島誠也
フォトクロミック分子材料の機能化 (第3章, 7)
自己組織化マテリアルのフロンティア(次代を担う研究者による提案—未来を創るエキゾチック自己組織化戦略), 「エキゾチック自己組織化材料」研究グループ編, フロンティア出版, pp. 180-187 (2015).
- (10) M. Morimoto, S. Kobatake, M. Irie, H. K. Bisoyi, Q. Li, S. Wang, H. Tian
Photochromic bulk materials (Chapter 8), *Photochromic Materials: Preparation, Properties and Applications, First Edition*, Eds. by H. Tian, J. Zhang, Wiley-VCH Verlag, pp. 281-361 (2016).
- (11) 小島誠也
フォトクロミズム (第12章 12.1)
光化学フロンティア 未来材料を生む有機光化学の基礎, 化学同人, pp. 271-284 (2018).
- (12) 小島誠也
ジアリールエテン分子結晶のアクチュエーター機能 (第2編、第5章)
光機能性有機・高分子材料における新たな息吹, シーエムシー出版, pp. 50-60 (2019).
- (13) Seiya Kobatake, Daichi Kitagawa
Photomechanical Behavior of Photochromic Diarylethene Crystals (Chapter 1), *Mechanically Responsive Materials for Soft Robotics*, Ed. by H. Koshima, Wiley-VCH Verlag, pp. 3-28 (2020).
- (14) Seiya Kobatake, Tatsumoto Nakahama
Solid-state fluorescence switching using photochromic diarylethenes (Chapter 15), *Advances in Organic Crystal Chemistry, Comprehensive Reviews 2020*, Eds.: M. Sakamoto, H. Uekusa, Springer, Singapore, pp. 299-323 (2020).
- (15) Seiya Kobatake, Daichi Kitagawa
Photoresponsive molecular crystals for light-driven photoactuators, *Photosynergetic Responses in Molecules and Molecular Aggregates*, Eds.: H. Miyasaka, K. Matsuda, J. Abe, T. Kawai, Springer, Singapore, pp. 427-447 (2020)
- (16) Seiya Kobatake
Photochromism, *Progress in the Science of Functional Dyes*, Eds.: Y. Ooyama, S. Yagi, Springer, Singapore, pp. 263-281 (2021)

国際会議発表論文 (自身による発表のみ記載)

- (1) Seiya Kobatake, Bunichiro Yamada, and Shuzo Aoki
Versatile behavior of α -(substituted methyl)acrylic esters in radical polymerization
3rd Pacific Polymer Conference, Gold Coast, Australia, *Preprints* p.327-328 (December 13-17, 1993).
- (2) Seiya Kobatake, Osamu Konosu, and Bunichiro Yamada
Severely hindered propagation and termination allowing radical polymerization of α -substituted acrylates
4th Pacific Polymer Conference, Kauai, Hawaii, USA, *Preprints* p.195 (168) (December 12-16, 1995).
- (3) Seiya Kobatake, H. James Harwood, Roderic P. Quirk, and Duane B. Priddy
Synthesis of nitroxy-functional polybutadiene by anionic polymerization using a nitroxy-functional

- terminator
29th Central Regional Meeting, Midland, Michigan, USA, *Preprints* 332 (May 28-30, 1997).
- (4) Seiya Kobatake, H. James Harwood, Roderic P. Quirk, and Duane B. Priddy
Block copolymer synthesis by styrene polymerization initiated with nitroxy-functionalized polybutadiene
214th ACS National Meeting, Nevada, Las Vegas, USA; *Polymer Preprints*, 38(2), p.664-665 (September 7-11, 1997).
 - (5) Seiya Kobatake, Taro Yamada, and Masahiro Irie
Photochromism of diarylethenes in single-crystalline phases
The 3rd International Symposium on Organic Photochromism (ISOP99), Fukuoka, Japan, *Preprints* p.66 (November 14-18, 1999).
 - (6) Seiya Kobatake, Thorsten Lifka, Nobuo Kato, and Masahiro Irie
Photochromism of 1,2-bis(2-methyl-5-phenyl-3-thienyl)perfluorocyclopentene in a single-crystalline phase
The 3rd International Symposium on Organic Photochromism (ISOP99), Fukuoka, Japan, *Preprints* p.102 (November 14-18, 1999).
 - (7) Seiya Kobatake, Masashi Horichi, and Masahiro Irie
Photo-induced reversible surface morphology change of a photochromic diarylethene single crystal
XVIIIth IUPAC Symposium on Photochemistry, Dresden, Germany, *Preprints* p.350 (July 22-27, 2000).
 - (8) Seiya Kobatake, Katsunori Shibata, Kingo Uchida, and Masahiro Irie
Thermally irreversible crystalline photochromism of dithienylethenes
2000 International Chemical Congress of Pacific Basin Societies (Pacifichem 2000), Honolulu, Hawaii, USA, *Preprints* 1475 (December 14-19, 2000).
 - (9) Seiya Kobatake, Keishi Muto, Katsunori Shibata, Masakazu Morimoto, Masahiro Irie
Single-crystalline photochromism of diarylethenes: efficient cyclization reaction
14th International Conference on Photochemical Conversion and Storage of Solar Energy (IPS-14), Hokkaido, Japan, *Preprints* W5-P-29 (August 4-9, 2002).
 - (10) Seiya Kobatake and Masahiro Irie
Efficient photocyclization reactions in single-crystalline photochromism of diarylethenes
International Symposium on Photochromic Diarylethenes — Fundamentals and Applications —, Miesbach, Germany, *Preprints* p.27 (September 18-20, 2002).
 - (11) Seiya Kobatake and Masahiro Irie
Efficient photochromic reactions of diarylethene crystals
XXIst International Conference of Photochemistry (ICP21), Nara, Japan, *Preprints* p.670 (5P128) (July 26-31, 2003).
 - (12) Seiya Kobatake, Masakazu Morimoto, Yoshimichi Matsumoto, and Masahiro Irie
Photochromic diarylethene single crystals with nano-layered structures
4th International Symposium on Photochromism (ISOP04), Arcachon, France, *Preprints* p.139 (P65) (September 12-15, 2004).
 - (13) Seiya Kobatake, Yoshimichi Matsumoto, and Masahiro Irie
Conformational control of photochromic reactivity in a diarylethene single crystal
XXII International Conference on Photochemistry (ICP2005), Cairns, Queensland, Australia, *Preprints* p.74 (714) (July 24-29, 2005).
 - (14) Seiya Kobatake, Yoshimichi Matsumoto, and Masahiro Irie
Conformational control of photochromic reactivity in a diarylethene single crystal
2005 International Chemical Congress of Pacific Basin Societies (Pacifichem 2005), Honolulu, Hawaii, USA, *Preprints* ORGN-1053 (December 15-20, 2005).
 - (15) Seiya Kobatake and Hirotsugu Kuratani
Photochromic behavior of polystyrene having a diarylethene

- 2005 International Chemical Congress of Pacific Basin Societies (Pacifichem 2005), Honolulu, Hawaii, USA, *Preprints* MATL-1327 (December 15-20, 2005).
- (16) Seiya Kobatake and Hirotsugu Kuratani
Photochromism of a diarylethene chromophore in polystyrene up to high conversion in a solid-state film
XXIst IUPAC Symposium on Photochemistry, Kyoto, Japan, *Preprints* p.413 (P231) (April 2-7, 2006).
- (17) Seiya Kobatake and Masahiro Irie
Arrangement control of photofunctional photochromic organic microcrystals and their reaction dynamics
KAKENHI International Symposium on "Molecular Nano Dynamics", Osaka, Japan, *Preprints* p.94 (P-88) (June 1-3, 2006).
- (18) Seiya Kobatake, Masakazu Morimoto, and Masahiro Irie
Control of nanostructure in photochromic diarylethene single crystals
14th Annual International Conference on Composites/Nano Engineering (ICCE-14), Boulder, Colorado, USA, *Preprints* (July 2-8, 2006).
- (19) Seiya Kobatake
Single-crystalline photochromism of diarylethenes with high conversion
Japanese-French Joint Seminar on Organic Photochromism — Switches and Memories —, Hayama, Kanagawa, Japan, *Preprints* p.7 (October 15-18, 2006).
- (20) Seiya Kobatake
Photoresponsive property changes of organic photochromic crystals
11th OCU International Symposium, Osaka, Japan, *Preprints* (August 3, 2007).
- (21) Seiya Kobatake, Yuko Terakawa
Acid-induced photochromic system switching of diarylethene derivatives between P- and T-types
5th International Symposium on Photochromism (ISOP-07), Vancouver, Canada, *Preprints* p.6 (October 7-10, 2007).
- (22) Seiya Kobatake
Photoreversible property changes of photochromic diarylethene crystals
2007 Korea-Japan Symposium on Frontier Photoscience, Gyeongju, Korea, *Preprints* p.166-167 (IL76) (November 22-25, 2007).
- (23) Seiya Kobatake
Development of photoreversible organic photochromic crystals
10th Annual Japanese-American Frontiers of Science Symposium, Hayama, Kanagawa, Japan, *Preprints* (December 1-3, 2007).
- (24) Seiya Kobatake and Itsuka Yamashita
Photoinduced phase transition between polymorphic crystals of a photochromic diarylethene
XXII IUPAC Symposium on Photochemistry, Gothenburg, Sweden, *Preprints* p.384 (P256) (July 28-August 1, 2008).
- (25) Seiya Kobatake and Itsuka Yamashita
Photoinduced phase transition between polymorphic crystals of a photochromic diarylethene
XXI Congress and General Assembly of the International Union of Crystallography (IUCr2008), Osaka, Japan, p.C585 (P16.13.18) (August 23-31, 2008); *Acta Cryst.*, A64, C585 (2008).
- (26) Seiya Kobatake, and Itsuka Yamashita
Photoinduced phase transition of polymorphic crystals of a photochromic diarylethene
New Horizons of Photochromism: From Design of Molecules to Applications, Arras, France, *Preprints* p.8 (Oral 08) (October 12–15, 2008).
- (27) Seiya Kobatake
Photoreversible property changes of photochromic diarylethene crystals
JAPAN-KOREA Polymer Young Scientist Symposium, New Green-pia Tsunan, Niigata, Japan,

- Preprints* p.116-117 (IF17) (October 22-25, 2008).
- (28) Seiya Kobatake
Photoresponsive crystal shape changes of photochromic diarylethenes
The 4th LSW Symposium on Soft & Wet Matter, Hokkaido, Japan, *Preprints* (January 9, 2009).
- (29) Seiya Kobatake
Photoinduced reversible crystal shape changes of photochromic diarylethenes
18th ISPPCC Satellite Symposium on Photochemistry and Photobiology of Supramolecular Systems and Coordination Compounds (PPC2009), Shiga, Japan, *Preprints* O-4 (July 9-11, 2009).
- (30) Seiya Kobatake, Hiroyuki Imagawa, Hidenori Nakatani, Seiichiro Nakashima, and Kyohei Sasaki
Photochromic diarylethenes having bulky substituents at the reactive positions
XXIV International Conference on Photochemistry (ICP2009), Toledo, Spain, *Preprints* p.374 (PSI-P69) (July 19-24, 2009).
- (31) Seiya Kobatake
Photoresponsive property changes of photochromic diarylethene crystals
International Symposium on Functional Nanosystems: Molecular Electronics and Photonics, Nara, Japan, *Preprints* p.13 (July 2, 2010).
- (32) Seiya Kobatake
Photoresponsive solid state property change of photochromic crystals
Japan-China Joint Symposium on Functional Supramolecular Architectures, Changchun, China, *Preprints* p.33-34 (July 24-28, 2010).
- (33) Seiya Kobatake
Molecular design for photoresponsive crystal shape changes of diarylethenes
The 6th International Symposium on Organic Photochromism (ISOP2010), Yokohama, Japan, *Preprints* p.31-32 (IL-05) (October 17-21, 2010).
- (34) Seiya Kobatake, Hiroyasu Nishi, and Tsuyoshi Asahi
Photochromic reaction of diarylethene polymers covered on gold nanoparticle
Third Japanese-French Joint Seminar on Organic Photochromism –Innovations in Photochromism–, Yokohama, Japan, *Preprints* p.61 (PP-31) (October 21-22, 2010).
- (35) Seiya Kobatake
Photoresponsive property changes of photochromic diarylethene crystals
6th Asian Photochemistry Conference 2010, Wellington, New Zealand, *Preprints* (November 14-18, 2010).
- (36) Seiya Kobatake, Hiroyasu Nishi, and Tsuyoshi Asahi
Gold nanoparticle enhanced photochromic reaction of photochromic diarylethene polymers
2010 International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA, *Preprints* (December 15-20, 2010).
- (37) Seiya Kobatake
Photoresponsive crystal shape change of photochromic diarylethenes
14th Asian Chemical Congress (14 ACC), Bangkok, Thailand, *Preprints* p.243 (INV0248) (September 5-8, 2011).
- (38) Seiya Kobatake
Photoresponsive crystal shape change of photochromic diarylethenes
7th Handai Nanoscience and Nanotechnology International Symposium, Osaka University, *Preprints* p. 42-43 (C-3) (November 10-11, 2011).
- (39) Seiya Kobatake
Rapidly photoresponsive molecular machinery of photochromic diarylethene Crystals
26th International Conference on Photochemistry (ICP 2013), Leuven, Belgium, *Preprints* p.45 (July 21-26, 2013).
- (40) Seiya Kobatake, Hiroaki Shoji, Daichi Kitagawa
Light-starting irreversible thermosensors of photochromic diarylethenes: Thermal reactivities by

- introducing substituents
7th International Symposium on Photochromism (ISOP 2013), Berlin, Germany, *Preprints* p.132 (September 23-26, 2013).
- (41) Seiya Kobatake
Photoresponsive Molecular Machinery of Photochromic Diarylethene Crystals (Invited)
International Symposium on Green Photonics 2014 (Nara Institute of Science and Technology, February 26, 2014).
- (42) Seiya Kobatake, Daichi Kitagawa
Photoresponsive Molecular Machinery of Photochromic Diarylethene Crystals (Invited Oral Communication), OC-CGOM-31
Joint Congress of Asian Crystallization Technology Symposium-2014 (ACTS-2014) and 11th International Workshop on Crystal Growth of Organic Materials (CGOM11) (Nara, June 17-20, 2014).
- (43) Seiya Kobatake, Daichi Kitagawa
Photoresponsive Molecular Machinery of Photochromic Diarylethene Crystals, PC-49
Joint Congress of Asian Crystallization Technology Symposium-2014 (ACTS-2014) and 11th International Workshop on Crystal Growth of Organic Materials (CGOM11) (Nara, June 17-20, 2014).
- (44) Seiya Kobatake, Daichi Kitagawa
Photoresponsive Bending and Twisting of Photochromic Diarylethene Crystals (Poster)
XXVth IUPAC Symposium on Photochemistry (Bordeaux, France, July 13-18, 2014).
- (45) Seiya Kobatake, Daichi Kitagawa
Photoactuator of Photochromic Diarylethene Crystals (Poster)
World Engineering Conference and Convention 2015 (WECC2015) (Kyoto, November 29-December 2, 2015).
- (46) Seiya Kobatake, Daichi Kitagawa
Photomechanical actuators of photochromic diarylethene crystals (Oral)
Pacifichem 2015 (Honolulu, Hawaii, USA, December 15-20, 2015).
- (47) Seiya Kobatake
Development of Novel Photomechanical Phenomena of Photoresponsive Molecular Crystals by High-order Photoexcitation (Oral)
1st International Symposium on Photosynergetics (Osaka University, Sigma Hall, June 2-4, 2016)
- (48) Seiya Kobatake, Daichi Kitagawa, Rika Tanaka, Kaito Kawasaki
Unusual Photoinduced Bending Behavior of Photochromic Diarylethene Crystals (Oral)
8th International Symposium on Photochromism (ISOP 2016) (Shanghai, China, November 4-7, 2016).
- (49) Seiya Kobatake
Development of Novel Photomechanical Phenomena of Photoresponsive Molecular Crystals by High-order Photoexcitation (Oral)
2nd International Symposium on Photosynergetics and 3rd Workshop on Photo-active Materials with Cooperative and Synergetic Responses - Nanosynergetics, International Associated Laboratory (LIA) between France and Japan (Osaka University, Sigma Hall, May 21-23, 2018)
- (50) Seiya Kobatake
Photoinduced Crystal Shape Change of Photochromic Diarylethene Crystals (Plenary Lecture, PS-5)
13th International Workshop on Crystal Growth of Organic Materials (CGOM13) (Seoul, Korea, August 27-30, 2018).
- (51) Seiya Kobatake, Daichi Kitagawa
Photochromic Diarylethene Crystals That Exhibit Unusual Photomechanical Behavior (Invited Lecture, S7-I-2)
10th Asian Photochemistry Conference (APC 2018) (Taipei, Taiwan, December 16-20, 2018).

- (52) Seiya Kobatake
Unusual Photomechanical Behavior of Photochromic Diarylethene Crystals (Invited,Th1)
24th International Conference on the Chemistry of the Organic Solid State (ICCOSS XXVI 2019)
(New York, U.S.A., June 16-21, 2019).
- (53) Seiya Kobatake, Daichi Kitagawa, Akira Hirano
Irradiation Method Dependence of Photoinduced Shape Change of Diarylethene Crystals (Oral Presentation)
9th International Symposium on Photochromism (Paris, France, September 23-27, 2019).
- (54) Seiya Kobatake
Development of Novel Photomechanical Phenomena of Photoresponsive Molecular Crystals by High-order Photoexcitation (Oral Presentation)
Final International Symposium on Photosynergetics (Osaka, Japan, October 23-26, 2019).
- (55) Seiya Kobatake
Photoresponsive Diarylethene Molecular Crystals for Photoactuators (Invited, F.EL05.01.01)
2020 Fall Meeting (Virtual, November 27-December 4, 2020)
- (56) Seiya Kobatake
Photochromic molecular crystals: From color change to photoactuator (Invited)
2021 International Chemical Congress of Pacific Basin Societies (Pacifichem 2021) (Virtual, December 16-21, 2021)
- (57) Seiya Kobatake
Photochromic diarylethene crystals for photoresponsive actuators (Invited)
2021 International Chemical Congress of Pacific Basin Societies (Pacifichem 2021) (Virtual, December 16-21, 2021)

招待講演・依頼講演（国際会議については上記と重複あり）

- (1) 小島誠也
ジアリールエテン単結晶のフォトクロミズム
フォトクロミック材料の現状－光ナノテク材料への展開，独立行政法人産業総合研究所
関西センター（2001年12月12日）
- (2) 小島誠也
ジアリールエテン単結晶のフォトクロミズム
粒子線の高度利用，京都大学放射線研究所（2002年3月5日）
- (3) 小島誠也
ジアリールエテンのフォトクロミック反応制御
第5回CREST 計算化学研究会，東北大学工学部（2002年7月25日）
- (4) Seiya Kobatake and Masahiro Irie
Efficient photocyclization reactions in single-crystalline photochromism of diarylethenes
International Symposium on Photochromic Diarylethenes — Fundamentals and Applications —,
Miesbach, Germany (September 18-20, 2002).
- (5) 小島誠也
ジアリールエテン単結晶のフォトクロミズム（進歩賞受賞講演1-B3-28）
日本化学会第83春季年会，早稲田大学西早稲田キャンパス（2003年3月18-21日）
- (6) 小島誠也・入江正浩
分子結晶の光反応ナノダイナミクス（特別企画招待講演3-S8-02）
日本化学会第83春季年会，早稲田大学西早稲田キャンパス（2003年3月18-21日）
- (7) 小島誠也
光で色が変わる光機能性有機結晶材料
大阪市立大学大学院工学研究科 第9回「オープン・ラボラトリー」，大阪産業創造館（2004年5月28日）

- (8) 小島誠也
光機能性有機結晶材料の創製
第4回 資源化学研究所フォーラム, 東京工業大学 (2005年3月10日)
- (9) 小島誠也
光機能性フォトクロミック有機結晶材料の開発
第93回ラドテック研究会, 大阪科学技術センター (2005年6月7日)
- (10) 小島誠也
有機フォトクロミック固体材料の開発と表示材料への応用
有機ナノテク材料研究交流会, アバローム紀の国, 和歌山 (2005年7月5日)
- (11) Seiya Kobatake, Masakazu Morimoto, Masahiro Irie
Control of nanostructure in photochromic diarylethene single crystals
ICCE-14, Boulder, Colorado, USA (July 2-8, 2006)
- (12) Seiya Kobatake
Single-crystalline Photochromism of Diarylethenes with High Conversion
Japanese-French Joint Seminar on Organic Photochromism -Switches and Memories-, Hayama, Kanagawa, Japan (October 15-18, 2006)
- (13) 小島誠也
光機能性固体材料の新展開
第68 回高分子若手研究会[関西], 神戸市セミナーハウス (2007年7月28-29日)
- (14) Seiya Kobatake
Photoresponsive Property Changes of Organic Photochromic Crystals
11th OCU International Symposium, Osaka City University (August 3, 2007)
- (15) 小島誠也
光と色と化学反応
2007年度大阪市立大学化学セミナー, 大阪市立大学 (2007年8月3-4日)
- (16) 小島誠也
可視光安定・加熱消去型フォトクロミック化合物を用いた光プリント表示材料への可能性
『電子ペーパー』における研究・用途開発のトレンド, 東京都大井町・きゅりあん (2007年8月29-31日)
- (17) 小島誠也
光機能性有機固体材料の新展開
高分子講座, 高分子学会中国四国支部, 徳島大学工業会館 (2007年11月9日)
- (18) Seiya Kobatake
Photoreversible Property Changes of Photochromic Diarylethene Crystals
2007 Korea-Japan Symposium on Frontier Photoscience, Gyeongju, Korea (November 22-25, 2007)
- (19) 小島誠也
光で形を変える結晶材料
2008年度第2回光材料・応用技術研究会, 機械振興会館, 東京 (2008年10月3日)
- (20) Seiya Kobatake
Photoreversible Property Changes of Photochromic Diarylethene Crystals
JAPAN-KOREA Polymer Young Scientist Symposium, New Green-pia Tsunan, Niigata, Japan (October 22-25, 2008)
- (21) Seiya Kobatake
Photoresponsive Crystal Shape Changes of Photochromic Diarylethenes
The 4th LSW Symposium on Soft & Wet Matter, Hokkaido University, Japan (January 9, 2009)
- (22) Seiya Kobatake
Photoinduced reversible crystal shape changes of photochromic diarylethenes
18th ISPPCC Satellite Symposium on Photochemistry and Photobiology of Supramolecular Systems and Coordination Compounds (PPC2009), Shiga, Japan, *Preprints* O-4 (July 9-11, 2009).
- (23) 小島誠也

- 光機能性有機分子結晶の固体物性制御
「構造制御と機能」研究領域 平成 21 年度成果報告会 ナノサイエンスを舞台とする若き
分子科学者達の挑戦, 京都ガーデンパレス (2010 年 2 月 1 日)
- (24) 小島誠也
光機能性有機分子材料の新展開
第 8 回キャンパス交流会 講演会, 大阪市立大学 (2010 年 2 月 10 日)
- (25) 小島誠也
光機能性有機分子結晶の物性制御
革新的材料・プロセス研究センター 2009 年度シンポジウム, 龍谷大学瀬田学舎 (2010 年 3
月 8 日)
- (26) Seiya Kobatake
Photoresponsive property changes of photochromic diarylethene crystals
International Symposium on Functional Nanosystems: Molecular Electronics and Photonics, Nara,
Japan, *Preprints* p.13 (July 2, 2010).
- (27) Seiya Kobatake
Photoresponsive solid state property change of photochromic crystals
Japan-China Joint Symposium on Functional Supramolecular Architectures, Changchun, China,
Preprints p.33-34 (July 24-28, 2010).
- (28) Seiya Kobatake
Molecular design for photoresponsive crystal shape changes of diarylethenes
The 6th International Symposium on Organic Photochromism (ISOP2010), Yokohama, Japan,
Preprints p.31-32 (IL-05) (October 17-21, 2010).
- (29) 小島誠也
メゾスコピック光機能性有機分子結晶の固体物性制御
第 19 回有機結晶シンポジウム, 大阪市立大学 (2010 年 11 月 11-12 日)
- (30) Seiya Kobatake
Photoresponsive property changes of photochromic diarylethene crystals
6th Asian Photochemistry Conference 2010, Wellington, New Zealand, *Preprints* (November 14-18,
2010).
- (31) 小島誠也
光で動く分子と結晶
第 2 回 SPring-8 次期計画 2019 シンポジウム ～光科学の明日～, 学術総合センター (2010
年 12 月 4 日)
- (32) Seiya Kobatake
Photoresponsive crystal shape change of photochromic diarylethenes
14th Asian Chemical Congress (14 ACC), Bangkok, Thailand, *Preprints* p.243 (INV0248)
(September 5-8, 2011).
- (33) Seiya Kobatake
Photoresponsive crystal shape change of photochromic diarylethenes
7th Handai Nanoscience and Nanotechnology International Symposium, Osaka University, *Preprints*
p. 42-43 (C-3) (November 10-11, 2011).
- (34) 小島誠也
光で動く光機能性有機結晶
印刷・情報記録・表示研究会および光反応・電子用材料研究会, 三菱電機 先端技術総合研
究所, *Preprints* p. 5-6 (2011 年 12 月 21 日)
- (35) 小島誠也
フォトクロミック分子集合体材料の設計と機能
第 61 回高分子討論会, 名古屋工業大学, *Polymer Preprints*, Vol. 61(2), p. 4506-4508 (2012 年 9
月 19-21 日)
- (36) Seiya Kobatake

- Rapidly photoresponsive molecular machinery of photochromic diarylethene Crystals
26th International Conference on Photochemistry (ICP 2013), *Preprints* p.45 (Leuven, Belgium, July 21-26, 2013).
- (37) Seiya Kobatake
Photoresponsive Molecular Machinery of Photochromic Diarylethene Crystals
International Symposium on Green Photonics 2014 (Nara Institute of Science and Technology, February 26, 2014).
- (38) Seiya Kobatake, Daichi Kitagawa
Photoresponsive Molecular Machinery of Photochromic Diarylethene Crystals, OC-CGOM-31
Joint Congress of Asian Crystallization Technology Symposium-2014 (ACTS-2014) and 11th International Workshop on Crystal Growth of Organic Materials (CGOM11) (Nara, June 17-20, 2014).
- (39) Seiya Kobatake
Photomechanical Actuators for Next Generation Intelligent Materials
The 2014 OCARINA Annual International Meeting (Osaka City University, March 4-5, 2015).
- (40) 小島誠也
光応答性フォトクロミック化合物の特徴とその応用
大阪市立大学大学院工学研究科 第62回「オープン・ラボラトリー」(大阪産業創造館, 2015年4月10日)
- (41) 小島誠也
発光・発色材料の新技術
大阪市立科学館 友の会 特別講演会 (大阪市立科学館, 2015年5月16日)
- (42) 小島誠也
光応答性有機分子結晶の光化学と固体物性変化(光化学協会賞 受賞講演), 1AL04
2015年光化学討論会 (大阪市立大学, 2015年9月9-11日)
- (43) 小島誠也
光スタート型低温温度上昇感知センサー
第5回関西ものづくり技術シーズ発表会(追手門学院 大阪城スクエア 大手前ホール, 2016年2月8日)
- (44) Seiya Kobatake
Photomechanical Actuators of Photochromic Crystals
7th OCARINA International Symposium in conjunction with Symposium in honor of Distinguished Professor Michael Nobel (Osaka City University, March 17-18, 2016)
- (45) 小島誠也
高次光励起による光応答性分子結晶のフォトメカニカル新現象の開拓(特別企画)
日本化学会第96春季年会(同志社大学京田辺キャンパス, 2016年3月24-27日)
- (46) 小島誠也
光をあてると、色づく・曲がる・ねじれる有機結晶材料
第6回CSJ化学フェスタ2016(タワーホール船堀, 2016年11月14-16日)
- (47) 小島誠也
光スタート型低温温度上昇センサー分子の開発
科学技術振興機構 スマートテクノロジー新技術説明会(東京・市ヶ谷 JST 東京本部別館, 2016年11月29日)
- (48) 小島誠也
有機フォトクロミック結晶の光化学
第7回フッ素化学若手の会(湯の花温泉溪山閣(京都府亀岡市), 2017年8月21-22日)
- (49) 小島誠也
有機分子結晶の光化学: 光駆動分子マシンからマイクロマシンまで
光化学基礎講座19: 光化学の基礎概念と実験技術2017(特別講演)(大阪大学豊中キャンパス, 基礎工学部国際棟(シグマホール)(豊中市), 2017年10月4日)

- (50) 小島誠也
光機能性有機結晶の微小フォトアクチュエータへの展開
第 225 回フォトポリマー懇話会講演会ー最先端光機能材料・物性 (I-site なんば (大阪市浪速区), 2018 年 1 月 26 日)
- (51) 小島誠也
光に応答する微小なフォトメカニカル結晶材料, 4S6-03
日本化学会第 98 春季年会 (日本大学理工学部船橋キャンパス, 2018 年 3 月 20-23 日)
- (52) Seiya Kobatake
Photoinduced Crystal Shape Change of Photochromic Diarylethene Crystals (Plenary Lecture, PS-5)
13th International Workshop on Crystal Growth of Organic Materials (CGOM13) (Seoul, Korea, August 27-30, 2018).
- (53) 小島誠也
フォトクロミック結晶の光化学と固体物性変化 (特別講演,3-I-06)
第 61 回放射線化学討論会 (大阪市立大学杉本キャンパス (大阪市住吉区), 2018 年 9 月 26-28 日)
- (54) 小島誠也
ジアリールエテン結晶のフォトクロミズムと機能発現 (特別講演)
光化学基礎講座 20: 光化学の基礎概念と実験技術 2018 (大阪大学豊中キャンパス, 基礎工学部国際棟(シグマホール) (豊中市) , 2018 年 10 月 3 日)
- (55) 小島誠也
光で結晶を曲げる, C1-04 (招待講演)
第 8 回 CSJ 化学フェスタ 2018 (タワーホール船堀, 2018 年 10 月 23-25 日)
- (56) Seiya Kobatake, Daichi Kitagawa
Photochromic Diarylethene Crystals That Exhibit Unusual Photomechanical Behavior (Invited Lecture, S7-I-2)
10th Asian Photochemistry Conference (APC 2018) (Taipei, Taiwan, December 16-20, 2018).
- (57) 小島誠也
フォトクロミック分子結晶のフォトメカニカル挙動
第 10 回 OCARINA 国際シンポジウム (大阪市立大学 学術情報総合センター, 2019 年 3 月 5-6 日)
- (58) 小島誠也
光で駆動する有機分子結晶フォトアクチュエーターの機能 (依頼講演)
大阪市立大学大学院工学研究科 第 78 回「オープン・ラボラトリー」(大阪産業創造館, 2019 年 4 月 26 日)
- (59) Seiya Kobatake
Unusual Photomechanical Behavior of Photochromic Diarylethene Crystals (Invited,Th1)
24th International Conference on the Chemistry of the Organic Solid State (ICCOSS XXVI 2019) (New York, U.S.A., June 16-21, 2019).
- (60) 小島誠也
有機結晶のフォトクロミズムと固体光化学 (特別講演)
光化学基礎講座 21: 光化学の基礎概念と実験技術 2019 (大阪市立大学文化交流センターホール (大阪市) , 2019 年 10 月 3-4 日)
- (61) 小島誠也
光化学の応用
光化学基礎講座 22: 光化学の基礎概念と実験技術 2020 (web 開催, 2020 年 10 月 15-16 日)
- (62) Seiya Kobatake
Photoresponsive Diarylethene Molecular Crystals for Photoactuators (Invited, F.EL05.01.01)
2020 MRS Fall Meeting (Virtual, November 27-December 4, 2020)
- (63) 小島誠也
光化学の応用

光化学基礎講座 23: 光化学の基礎概念と実験技術 2021 (web 開催, 2021 年 10 月 4-5 日)

(64) 小島誠也

フォトクロミック材料が使えるのか? 紫外線センサー・温度センサー・フォトアクチュエーター (招待講演)

センサネットワークによるスマートソサエティの実現に向けて, 近畿化学協会機能性色素部会・同 エレクトロニクス部会 合同公開講演会 (web 開催, 2021 年 10 月 26 日)

(65) Seiya Kobatake

Photochromic molecular crystals: From color change to photoactuator (Invited)

2021 International Chemical Congress of Pacific Basin Societies (Pacifichem 2021) (Virtual, December 16-21, 2021)

(66) Seiya Kobatake

Photochromic diarylethene crystals for photoresponsive actuators (Invited)

2021 International Chemical Congress of Pacific Basin Societies (Pacifichem 2021) (Virtual, December 16-21, 2021)