

1. 論文リスト

- (116) Masafumi Hirano,* Kosuke Sano, Yuki Kanazawa, Nobuyuki Komine, Zen Maeno, Takato Mitsudome,* Hikaru Takaya,* **Mechanistic Insights on Pd/Cu-Catalyzed Dehydrogenative Coupling of Dimethyl Phthalate**, *ACS Catalysis*, **8**, 5827-5841 (2018).
- (115) Masafumi Hirano,* Hideyuki Kobayashi, Takao Ueda, Yuki Hiroi, Ryota Abe, Nobuyuki Komine, Annie L. Colebatch, Martin A. Bennett,* **In site Routes to Catalytically Active Ru(0) Species by Reduction of Readily Available, Air-stable Precursors**, *Organometallics*, **37**, 1092-1102 (2018).
- (114) Sayori Kiyota, Masafumi Hirano,* **Ru(0)-Catalyzed Straightforward Synthesis of Conjugated Tetraenes: An Approach using Two Internal Alkynes with 1,3-Butadiene**, *Organometallics*, **37**, 227-234 (2018).
- (113) Nobuyuki Komine,* Ryo Ito, Hiromi Suda, Masafumi Hirano, Sanshiro Komiya, **Selective Alkene Insertion into Inert Hydrogen-Metal Bond Catalyzed by Mono(phosphorus ligand)palladium(0) Complexes**, *Organometallics*, **36**, 36, 4160-4168 (2017).
- (112) Masafumi Hirano,* Masahiro Moritake, Tasuku Murakami, Nobuyuki Komine, **Ru(0)-Catalyzed C3-Selective Coupling Reactions of Unsaturated 5-Membered Heterocycles with Methyl Methacrylate and Methacryl Amide**, *Chemistry Letters*, **46**, 1522-1524 (2017). (Editor's Choice)
- (111) Sayori Kiyota, Seonyoung In, Nobuyuki Komine, Masafumi Hirano,* **Regioselectivity Control by Added MeCN in Ru(0)-Catalyzed Cross-Dimerization of Internal Alkynes with Methyl Methacrylate**, *Chemistry Letters*, **46**, 1040-1043 (2017).
- (110) Sayori Kiyota, Hirofumi Soeta, Nobuyuki Komine, Sanshiro Komiya, Masafumi Hirano,* **E-Selective Dimerization of Phenylacetylene Catalyzed by Cationic Tris(μ -hydroxo)diruthenium(II) Complex and the Mechanistic Insight: The Role of Two Ruthenium Centers in Catalysis**, *J. Mol. Catal. A*. (Editor's choice paper), **426**, 419-428 (2017).
- (109) Sayori Kiyota, Seonyoung In, Ryo Saito, Nobuyuki Komine, Masafumi Hirano,* **Ru(0)-Catalyzed Direct Coupling of Internal Alkynes with Conjugated Dienes: An Efficient Access to Conjugated Trienes**, *Organometallics*, **35**, 4033-4043 (2016).
- (108) Sayori Kiyota, Takako Kobori, Hirofumi Soeta, You-ichi Ichikawa, Nobuyuki Komine, Sanshiro Komiya, Masafumi Hirano,* **Synthesis of and Catalytic Nitrile Hydration by a Cationic Tris(μ -hydroxo)diruthenium(II) Complex Having PMe₃ Ligands**, *Polyhedron*, **120**, 3-10 (2016).
- (107) Masafumi Hirano,* Yuki Hiroi, Tasuku Murakami, Hirofumi Ogawa, Sayori Kiyota, Nobuyuki Komine, Sanshiro Komiya, **Ru(0)-Catalyzed C3-Selective Cross-Dimerization of 2,5-Dihydrofuran with Conjugated Dienes**, *Organometallics*, **35**, 1343-1346 (2016).
- (106) Masafumi Hirano,* Takao Ueda, Nobuyuki Komine, Sanshiro Komiya, Saki Nakamura, Hikaru Deguchi, Susumu Kawauchi,* **Mechanistic Insights into Catalytic Linear Cross-Dimerization between Conjugated Dienes and Styrenes by a Ruthenium(0) Complex**, *J. Organomet. Chem.*, **797**, 174-184 (2015).
- (105) Nobuyuki Komine,* Ayako Kuramoto, Toshiyuki Yasuda, Tatsuya Kawabata, Masafumi Hirano, Sanshiro Komiya*, **Synthesis of Heterodinuclear Hydride Complexes by Oxidative Addition of a**

Transition-Metal Hydride to Pt(0) and Pd(0) Complexes, *J. Organometallic Chemistry*, **792**, 194-205 (2015).

(104) Nobuyuki Komine,* Makoto Abe, Ryoko Suda, Masafumi Hirano, **Markovnikov-Selective Hydrosilylation of Electron-Deficient Alkenes with Arylsilanes Catalyzed by Mono(phosphine)palladium(0)**, *Organometallics*, **34**, 432-437 (2015).

(103) Yuki Hiroi, Nobuyuki Komine, Sanshiro Komiya, Masafumi Hirano,* **Regio- and Enantioselective Cross-Dimerization between Conjugated Dienes and Acrylates Catalyzed by New Ruthenium(0) Complexes**, *Organometallics*, **33**, 6604-6613 (2014).

(102) Masafumi Hirano,* Takuya Okamoto, Nobuyuki Komine, Sanshiro Komiya, **Stoichiometric Formation of Conjugated Dienyl Ketones from 1,3-Dienes with Ketenes at Ruthenium(0) Complex**, *New J. Chem.*, **38**, 5052-5057 (2014).

(101) Masafumi Hirano,* Sosuke Kawazu, Nobuyuki Komine, **Direct Access to Fluorene by Successive C-O/C-H Bond Activations of 2-Phenylbenzyl Ester**, *Organometallics*, **33**, 1921-1924 (2014).

(100) Masafumi Hirano,* Yasuto Yanagisawa, Endin Mulyadi, Nobuyuki Komine, Sanshiro Komiya, **Multiple C-H Bond Cleavage of Alkyl Group in (2,6-Dialkylphenoxy)ruthenium(II) Complex**, *Organometallics*, **33**, 1235-1244 (2014).

(99) Nobuyuki Komine, Ayako Kuramoto, Kouhei Nakanishi, Masafumi Hirano, Sanshiro Komiya,* **Alkene and Alkyne Insertion into Hydrogen-Transition Metal Bonds Catalyzed by Palladium(0) Complex**, *Topics in Catalysis*, **57**, 960-966 (2014).

(98) Masafumi Hirano,* Haruka Inoue, Takuya Okamoto, Takao Ueda, Nobuyuki Komine, Sanshiro Komiya, Xian-qi Wang, and Martin A. Bennett,* **Cross-dimerization between Different *cisoid*- and *transoid*-1,3-Dienes at a Ruthenium(0) Center**, *New J. Chem.* **37**, 3433-3439 (2013).

(97) Yuki Hiroi, Nobuyuki Komine, Sanshiro Komiya, Masafumi Hirano,* **Asymmetric Cross-dimerization between Methyl Methacrylate and Substituted Alkenes by Ru(0)-Bicyclononadiene Complex**, *Org. Lett.* **15**, 2486-2489 (2013).

(96) Matthew T. Zamora, Kenta Oda, Nobuyuki Komine, Masafumi Hirano, Sanshiro Komiya,* **Stereoselective Thiirane Desulfurization Controlled by a Bridging or Terminal Acyl Ligand: Concerted vs S_N2 Pathways**, *J. Organomet. Chem.*, **739**, 6-10 (2013).

(95) Masafumi Hirano,* Ryo Fujimoto, Kohei Hatagami, Nobuyuki Komine, Sanshiro Komiya,* **Stoichiometric Carbon-Hydrogen Bond Cleavage Reaction in a Bis(carboxylato)ruthenium(II) Complex and Its Application to Catalytic H/D Exchange Reaction of Carboxylic Acids**, *ChemCatChem*, **5**, 1101-1115 (2013).

(94) Masafumi Hirano,* Takuya Okamoto, Nobuyuki Komine, Sanshiro Komiya, **Stoichiometric Carbon-Carbon Bond Forming Reaction of 1,3-Diene with 1,2-Diene in a Ruthenium(0) Complex**, *Organometallics* **31**, 4639-4642 (2012).

(93) Masafumi Hirano,* Yasutomo Arai, Yuka Hamamura, Nobuyuki Komine, Sanshiro Komiya, **Stoichiometric and Catalytic Cross Dimerization between Conjugated Dienes and Conjugated Carbonyls by a Ruthenium(0) Complex. Straightforward Access to Unsaturated Carbonyl Compounds by an Oxidative Coupling Mechanism**, *Organometallics*, **31**, 4006-4019 (2012).

(92) Masafumi Hirano,* Yumiko Sakate, Haruka Inoue, Yasutomo Arai, Nobuyuki Komine, Sanshiro Komiya, Xian-qi Wang, Martin A. Bennett,* **Synthesis of Conjugated Diene Complexes of Ruthenium(0) Derived from Ru(η^6 -naphthalene)(η^4 -1,5-COD): Z to E Isomerisation of Coordinated 1,3-Pentadiene**, *J. Organomet. Chem.* **708-709**, 46-57 (2012).

(91) Masafumi Hirano,* Masahiro Murakami, Toshinori Kuga, Nobuyuki Komine, Sanshiro Komiya,* **Acid-Promoted sp³ C-H Bond Cleavage in a Series of (2-Allylphenoxy)ruthenium(II) Complexes. Mechanistic Insight into the Aryloxo-Acid Interaction and Bond Cleavage Reaction**, *Organometallics*, **31**, 381-393 (2012).

(90) Masafumi Hirano,* Shin-ya Tatesawa, Minoru Yabukami, Yoko Ishihara, Yusuke, Hara, Nobuyuki Komine, Sanshiro Komiya,* **Carbon-Hydrogen Bond Cleavage Reaction in Four-Coordinate (2,6-Dimethylbenzenethiolato)platinum(II) Complexes. Dramatic Acceleration by Thiolato Hydrogen Acceptor**, *Organometallics*, **30**, 5110-5122 (2011).

(89) Yuki Hiroi, Nobuyuki Komine, Masafumi Hirano*, Sanshiro Komiya, **Prostereogenic Face and Orientational Control of Coordinated Olefins at Ru(0) in Oxidative Coupling Reaction between Methyl Methacrylate and 2,5-Dihydrofuran**, *Organometallics*, **30**, 1307-1310 (2011).

(88) Nobuyuki Komine, Kohtaro Ishiguro, Sachiyo Kanai, Masafumi Hirano, Sanshiro Komiya,* **Branch Selective Allylation of Acetylacetonone Catalyzed by Water-soluble Rhodium Complex Catalyst**, *J. Organomet. Chem.* **696**, 1927-1930 (2011).

(87) Masafumi Hirano,* Yumiko Sakate, Nobuyuki Komine, Sanshiro Komiya, Xian-qi Wang, Martin A. Bennett, **Stoichiometric Regio- and Stereoselective Oxidative Coupling Reaction of Conjugated Dienes with Ruthenium(0). A Mechanistic Insight into the Origin of Selectivity**. *Organometallics*, **30**, 768-777 (2011).

(86) Shin-ichi Tanaka, Nobuyuki Komine, Masafumi Hirano, Sanshiro Komiya,* **Synthesis of Heterodinuclear Ruthenium-manganese Complex Having μ -Benzylidene Ligand**, *J. Organomet. Chem.* **696**, 632-635 (2011).

(85) Masafumi Hirano,* Yasutomo Arai, Nobuyuki Komine, Sanshiro Komiya, **Stoichiometric and Catalytic Oxidative Coupling Reactions between Butadiene and Methyl Acrylate Promoted by Ruthenium(0) Complex**, *Organometallics*, **29**, 5741-5743 (2010).

(84) Masafumi Hirano,* Yuki Hiroi, Nobuyuki Komine, Sanshiro Komiya, **Catalytic Tail-to-tail Selective Dimerization of Methyl Methacrylate Promoted by Ruthenium(0) Complex**, *Organometallics*, **29**, 3690-3693 (2010).

(83) Masafumi Hirano,* Sayaka Togashi, Muneaki Ito, Yuko Sakaguchi, Nobuyuki Komine, Sanshiro Komiya,* **Carbon-Hydrogen Bond Cleavage Reaction in 5-Coordinate Bis(2,6-dimethylbenzenethiolato)ruthenium(II) Complexes**, *Organometallics*, **29**, 3146-3159 (2010).

(82) Shin-ichi Tanaka, Nobuyuki Komine, Masafumi Hirano, Sanshiro Komiya,* **Synthesis of Heterodinuclear (Carbene)platinum (or palladium) Complex which Gives μ -Alkenyl Type Complex by Deprotonation**, *Organometallics*, **28**, 5368-5381 (2009).

(81) Masafumi Hirano,* Yumiko Sakate, Nobuyuki Komine, Sanshiro Komiya, Martin A. Bennett,* **Isolation of *trans*-2,5-Bis(methoxycarbonyl)ruthenacyclopentane by Oxidative Coupling of Methyl Acrylate on Ruthenium(0) as an Active Intermediate for Tail-to-tail Selective Catalytic Dimerization**, *Organometallics*, **28**, 4902-4905 (2009).

(80) Sanshiro Komiya,* Sei Ezumi, Nobuyuki Komine, Masafumi Hirano, **Visible Light Enhanced Selective Reductive Elimination of Methylmanganese Complex from Heterodinuclear Dimethylphenyl(4,4'-di-tert-butyl-2,2'-bipyridine)platinum-pentacarbonylmanganese Complex**, *Organometallics*, **28**, 3608-3610 (2009).

(79) Masafumi Hirano,* Izirwan Bin Izhah, Naoki Kurata, Kaori Koizumi, Nobuyuki Komine, Sanshiro Komiya, **Reaction of an Oxaruthenacycle with DMAD. Stoichiometric Transformations of 2,6-Xylenol to Allylic Phenols and Benzopyrans via sp^3 C-H Bond Cleavage Reaction**, *Dalton Transactions*, 3270-3279 (2009)

(78) Masafumi Hirano,* Toshinori Kuga, Mariko Kitamura, Susumu Kanaya, Nobuyuki Komine, Sanshiro Komiya, **Acid Promoted Hydrogen Migration in 2-Allylphenoxoruthenium(II) to Form an η^3 -Allyl Complex**, *Organometallics*, **27**, 3635-3638 (2008).

(77) Sanshiro Komiya,* Akari Sako, Hirofumi Kosuge, Masafumi Hirano, Nobuyuki Komine, **Mechanical Stirring in Water/Hexane Biphasic Catalyst Controls Regioselectivity of Pd-Catalyzed Allylation Reaction**, *Chem. Lett.*, **37**, 640-641 (2008).

(76) Nobuyuki Komine, Tomoko Ishiwata, Jun-ya Kasahara, Erino Matsumoto, Masafumi Hirano, Sanshiro Komiya,* **Synthesis and Organic Group Transfer of Organodiplatinum Complex Having a 1,2-Bis(diphenylphosphino)ethane Ligand**, *Can. J. Chem.*, **2009**, 87, 176-182.

(75) Nobuyuki Komine, Takuma, Hirota, Masafumi Hirano, Sanshiro Komiya,* **E-Selective Allyl Transfer Reaction in μ - η^1 : η^2 -crotylplatinum-cobalt Complex**, *Organometallics*, **27**(9), 2145-2148 (2008).

(74) Nobuyuki Komine, Susumu Tsutsuminai, Masafumi Hirano, Sanshiro Komiya,* **Synthesis and Reactions of Heterodinuclear Organopalladium Complex Having an Unsymmetrical PN Ligand**, *J. Organomet. Chem.*, **692**(21), 4486-4494 (2007).

(73) Masafumi Hirano,* Hiromi Sato, Naoki Kurata, Nobuyuki Komine, Sanshiro Komiya,* **Carbon-Oxygen and Carbon-Hydrogen Bond Cleavage Reaction of *ortho*-Substituted Phenols by Ruthenium(II) Complex**, *Organometallics*, **26**(8), 2005-2016 (2007).

(72) Takao Shibasaki, Nobuyuki Komine, Masafumi Hirano,* Sanshiro Komiya, **Synthesis of Di-, Tri-, Tetra- and Pentacyclic Arene Complexes of Ruthenium(II): $[\text{Ru}(\eta^6\text{-polycyclic arene})(1\text{-}5\text{-}\eta^5\text{-cyclooctadienyl)]\text{PF}_6$ and Their Reactions with NaBH_4** , *J. Organomet. Chem.*, **692**(12), 2385-2394 (2007).

(71) Shin-ichi Tanaka, Hideko Hoh, Yoshifumi Akahane, Susumu Tsutsuminai, Nobuyuki Komine, Masafumi Hirano, Sanshiro Komiya,* **Synthesis and Reactions of Heterodinuclear Organopalladium-cobalt Complexes Acting as Copolymerization Catalyst for Aziridine and Carbon Monoxide**, *J. Organomet. Chem.* (2007) **692**, 26-35.

(70) Nobuyuki Komine, Susumu Tsutsuminai, Hideko Hoh, Toshiyuki Yasuda, Masafumi Hirano, Sanshiro Komiya,* **Synthesis and Structures of Heterodinuclear Organoplatinum(or -palladium)-molybdenum(or -tungsten) Complexes: Unexpected Structural Deformation of Heterodinuclear Propionylplatinum-tungsten Complex Having 1,2-Bis(diphenylphosphino)ethane Ligand**, *Inorg. Chim. Acta*, (2006), 359, 2699-3708.

(69) Ayako Kuramoto, Kouhei Nakanishi, Tatsuya Kawabata, Nobuyuki Komine, Masafumi Hirano, Sanshiro Komiya,* **Palladium-assisted Regioselective Olefin Insertion into and β -Hydrogen Elimination of Hydrogen-molybdenum and β -Tungsten Bonds. Synthesis and Reactions of Heterodinuclear Hydrido Complexes of Palladium and Platinum with Molybdenum and Tungsten,** *Organometallics* (2006), 25(2), 311-314.

(68) Takao Shibasaki, Nobuyuki Komine, Masafumi Hirano,* Sanshiro Komiya, **Synthesis of Momo-, Di and Trinuclear Ruthenium(0) Complexes Having a Triphenylene Ligand,** *Organometallics* (2006), 25(2), 523-527.

(67) Nobuyuki Komine, Kaoru Ichikawa, Anna Mori, Masafumi Hirano, Sanshiro Komiya,* **Enhanced Reductive Elimination of Dialkylgold(III) Complexes in Water,** *Chemistry Letters*, 34, (2005) 1704-1705.

(66) Masafumi Hirano, Yuko Sakaguchi, Toshiaki Yajima, Naoki Kurata, Nobuyuki Komine, Sanshiro Komiya.* **Stoichiometric and Catalytic sp^3 C-H/D₂ Exchange Reactions of *ortho*-Substituted Benzenethiol and Phenols by a Ruthenium(II) Complex. Effect of a Chalcogen Anchor on the Bond Cleavage Reaction,** *Organometallics* (2005) 24(20), 4799-4809.

(65) Sayori Kiyota, Jun-ichi Tamuki, Nobuyuki Komine, Masafumi Hirano, Sanshiro Komiya.* **Synthesis, Structure, and Fluxional Behavior of κ^1 -O-Enolatoiron(II) Complexes Derived from 1,3-Dicarbonyl Compounds,** *Chemistry Letters* (2005), 34(4), 498-499.

(64) Nobuyuki Komine, Akar Sako, Shin-ya Hirahara, Masafumi Hirano, Sanshiro Komiya.* **Selective Allylation of Arenethiols Using Water-soluble Palladium Complex Catalyst in Recyclable Water/hexane Biphasic Media.** *Chemistry Letters* (2005), 34(2), 246-247.

(63) Susumu Kanaya, Yuya Imai, Nobuyuki Komine, Masafumi Hirano, Sanshiro Komiya.* **Dehydrogenative Formation of a (η^4 -Enone)ruthenium(0) Complex as a Key Intermediate in the Catalytic Isomerization of Allylic Alcohol to Ketone.** *Organometallics* (2005), 24(6), 1059-1061.

(62) Nobuyuki Komine, Shin-ichi Tanaka, Susumu Tsutsuminai, Yoshifumi Akahane, Masafumi Hirano, Sanshiro Komiya.* **Copolymerization of Aziridines and Carbon Monoxide Catalyzed by a Heterodinuclear Organo Palladium-cobalt Complex.** *Chemistry Letters* (2004), 33(7), 858-859.

(61) Susumu Tsutsuminai, Nobuyuki Komine, Masafumi Hirano, Sanshiro Komiya.* **Enhanced C-C Bond Formation of Heterodinuclear Methylplatinum-molybdenum Complexes Having a Hemilabile Ligand with Dialkyl Acetylenedicarboxylate.** *Organometallics* (2004), 23(1), 44-53.

(60) Susumu Tsutsuminai, Nobuyuki Komine, Masafumi Hirano, Sanshiro Komiya. **Synthesis and Reactions of Heterodinuclear Organoplatinum Complexes Having an Unsymmetrical PN Ligand.** *Organometallics* (2003), 22(21), 4238-4247.

(59) Masafumi Hirano, Koji Onuki, Yuichi Kimura, Sanshiro Komiya.* **Regioselective C-H or N-H Bond Cleavage Reactions of Heterocyclic Compounds by [Ru(1,5-COD)(1,3,5-COT)]/Monodentate Phosphine.** *Inorganica Chimica Acta* (2003), 352 160-170.

(58) Masaki Furuya, Susumu Tsutsuminai, Hiroto Nagasawa, Nobuyuki Komine, Masafumi Hirano, Sanshiro Komiya.* **Catalytic Synthesis of Thiobutyrolactones via CO Insertion into the C-S Bond of Thietanes in the Presence of a Heterodinuclear Organoplatinum-Cobalt Complex.** *Chemical Communications* (Cambridge, United Kingdom) (2003), (16), 2046-2047.

(57) Masafumi Hirano, Rie Asakawa, Chifumi Nagata, Takashi Miyasaka, Nobuyuki Komine, Sanshiro Komiya.* **Ligand Displacement Reaction of Ru(η^4 -1,5-COD)(η^6 -1,3,5-COT) with Lewis Bases.** *Organometallics* (2003), 22(12), 2378-2386.

(56) Sanshiro Komiya, Masafumi Hirano. **Bond Activation by Low Valent Ruthenium Complexes.** *Dalton Transactions* (2003), (8), 1439-1453.

(55) Sanshiro Komiya,* Miho Ikuine, Nobuyuki Komine, Masafumi Hirano. **Synthesis and β -hydrogen Elimination of Water-soluble Dialkylplatinum(II) Complexes in Water.** *Bulletin of the Chemical Society of Japan* (2003), 76(1), 183-188.

(54) Masafumi Hirano, Takao Shibasaki, Sanshiro Komiya, Martin A Bennett.* **Synthesis of and Stereospecific Hydride Migration in Cationic (Tricyclic arene)(cyclooctadiene)ruthenium(II) Complexes.** *Organometallics* (2002), 21(26), 5738-5745.

(53) Sanshiro Komiya,* Miho Ikuine, Nobuyuki Komine, Masafumi Hirano. **Synthesis and Reactions of Water-soluble Diorganoplatinum(II) Complexes.** *Chemistry Letters* (2002), (1), 72-73.

(52) Masafumi Hirano,* Kohtaro Osakada, Hiroyuki Nohira, Akira Miyashita. **Crystal and Solution Structures of Photochromic Spirobenzothiopyran. First Full Characterization of the Meta-stable Colored Species.** *Journal of Organic Chemistry* (2002), 67(2), 533-540.

(51) Susumu Kanaya, Nobuyuki Komine, Masafumi Hirano, Sanshiro Komiya.* **Preferential Bond Activation of sp^3 C-H over sp^2 C-H in α,β -unsaturated Carboxylic Acids by Ruthenium Complex.** *Chemistry Letters* (2001), (12), 1284-1285.

(50) Sanshiro Komiya,* Masaru Kuwahara, Naoko Awazu, Masafumi Hirano Jun Fukatani. **Preparation of Highly Dispersed Nano-scale Platinum Composite Polymer Using Reactive Organoplatinum Complexes.** *Journal of Materials Science Letters* (2001), 20(8), 743-744.

(49) Atsushi Fukuoka, Sumiko Fukagawa, Masafumi Hirano, Nobuaki Koga, Sanshiro Komiya.* **Enhancement of CO Insertion into a Pd-C Bond in a Pd-Co Heterodinuclear Complex.** *Organometallics* (2001), 20(10), 2065-2075.

(48) Sanshiro Komiya,* Toshiyuki Yasuda, Atsushi Fukuoka, Masafumi Hirano. **Synthesis of Hydridoplatinum-molybdenum (or tungsten) Heterodinuclear Complexes by β -hydrogen Elimination of (dppe)EtPt-MCp(CO)₃. Selective Hydride Transfer from Pt to Mo (or W).** *Journal of Molecular Catalysis A: Chemical* (2000), 159(1), 63-70.

(47) Yoko Usui, Junko Noma, Masafumi Hirano, Sanshiro Komiya.* **C-Si Bond Cleavage of Ttrihalomethyltrimethylsilane by Alkoxo- and Aryloxogold or -copper Complexes.** *Inorganica Chimica Acta* (2000), 309(1-2), 151-154.

(46) Nobuyuki Komine, Hideko Hoh, Masafumi Masafumi Hirano, Sanshiro Komiya.* **Oxidative Addition of Organocobalt(I) and -molybdenum(II) Complexes to Palladium(0) Complexes To Give Heterodinuclear Organometallic Complexes.** *Organometallics* (2000), 19(25), 5251-5253.

(45) Masafumi Hirano, Naoki Kurata, Sanshiro Komiya.* **Successive O-H and sp^3 C-H Bond Activation of Ortho-substituted Phenols by a Ruthenium(0) Complex.** *Journal of Organometallic Chemistry* (2000), 607(1-2), 18-26.

- (44) Sanshiro Komiya,* Jose Giner Planas, Koji Onuki, Zhaobin Lu, Masafumi Hirano. **Versatile Coordination Modes and Transformations of the Cyclooctatriene Ligand in Ru(C₈H₁₀)L₃ (L = Tertiary Phosphine).** *Organometallics* (2000), 19(20), 4051-4059.
- (43) Masafumi Hirano, Sayori Kiyota, Masataka Imoto, Sanshiro Komiya.* **Michael Addition of N-bonded Enolato Ligands to Acrylonitrile in Iron and Ruthenium Complexes.** *Chemical Communications* (Cambridge) (2000), (17), 1679-1680.
- (42) Jose Giner Planas, Tsuyoshi Marumo, Yoichi Ichikawa, Masafumi Hirano, Sanshiro Komiya.* **Carbon-oxygen and Carbon-sulfur Bond Activation of Vinyl Esters, Ethers and Sulfides by Low Valent Ruthenium Complexes.** *Dalton* (2000), (15), 2613-2625.
- (41) Sanshiro Komiya,* Shin-ya Muroi, Masaki Furuya, Masafumi Hirano. **Regio- and Stereoselective Insertion Reactions of Thiiranes into Pt-Mn (or Re) Bond in Organoplatinum-Manganese or -Rhenium Heterodinuclear Complexes as Intermediates toward Desulfurization Reaction.** *Journal of the American Chemical Society* (2000), 122(1), 170-171.
- (40) Jose Giner Planas, Tsuyoshi Marumo, Youichi Ichikawa, Masafumi Hirano, Sanshiro Komiya.* **C-O and C-S Bond Activation of Allyl Esters, Ethers, and Sulfides by Low Valent Ruthenium Complexes.** *Journal of Molecular Catalysis A: Chemical* (1999), 147(1-2), 137-154.
- (39) Yoko Usui, Junko Noma, Masafumi Hirano, Sanshiro Komiya.* **Ring Opening Reactions of Thiiranes by Alkoxy- and Aryloxy-gold(I) Complexes.** *Journal of the Chemical Society, Dalton Transactions* (1999), (24), 4397-4406.
- (38) Atsushi Fukuoka, Akihiro Sato, Kin-ya Kodama, Masafumi Hirano, Sanshiro Komiya.* **Synthesis of Organo(siloxo)platinum and -Palladium Complexes and Preparation of Supported Nanoclusters by Facile Ligand Reduction.** *Inorganica Chimica Acta* (1999), 294(2), 266-274.
- (37) Takashi Morikita, Masafumi Hirano, Akito Sasaki, Sanshiro Komiya.* **C-S, C-H, and N-H Bond Cleavage of Heterocycles by a Zero-valent Iron Complex, Fe(N₂)(depe)₂ [depe = 1,2-bis(diethylphosphino)ethane].** *Inorganica Chimica Acta* (1999), 291(1-2), 341-354.
- (36) Jose Giner Planas, Masafumi Hirano, Sanshiro Komiya.* **Synthesis and Ligand Exchange Control of Ru(η^2 -C₂H₃YPh)(cod)(depe) (Y = O, S).** *Chemistry Letters* (1999), (9), 953-954.
- (35) Jose Giner Planas, Masafumi Hirano, Sanshiro Komiya.* **Regioselective 1,2-insertion of Ru into the C-S Bond in 3-substituted Thiophenes.** *Chemical Communications* (Cambridge) (1999), (18), 1793-1794.
- (34) Masafumi Hirano, Atsushi Takenaka, Yuji Mizuho, Makiko Hiraoka, Sanshiro Komiya.* **Synthesis of N-bonded Enolatoruthenium(II) by Oxidative Addition of Alkyl Cyanocarboxylate to a Ruthenium(0) Complex.** *Journal of the Chemical Society, Dalton Transactions* (1999), (18), 3209-3216.
- (33) Reiko Doumeki, Masaharu Hatano, Hiroo Kinoshita, Emi Yamashita, Masafumi Hirano, Atsushi Fukuoka, Sanshiro Komiya.* **Effect of Pt Precursors on N₂/N₂O Selectivity for Selective Reduction of NO by Hydrocarbon on Supported Pt Catalysts.** *Chemistry Letters* (1999), (6), 515-516.
- (32) Takehiro Sato, Nobuyuki Komine, Masafumi Hirano, Sanshiro Komiya.* **Selective Isomerization of 2-allylphenol to (Z)-2-propenylphenol Catalyzed by Ru(COD)(COT)/PEt₃.** *Chemistry Letters* (1999), (5), 441-442.

- (31) Sanshiro Komiya,* Tomoko Chigira, Toru Suzuki, Masafumi Hirano. **Polymerization of Alkyl Methacrylate Catalyzed by Hydridorhenium Complexes.** *Chemistry Letters* (1999), (4), 347-348.
- (30) Atsushi Fukuoka, Wataru Kosugi, Fumiaki Morishita, Masafumi Hirano, Sanshiro Komiya,* Louise McCaffrey, William Henderson. **Water-soluble Iridium and Rhodium Complexes with Tris(hydroxymethyl)Phosphine and their Catalysis in Biphasic Hydrogenation and Hydroformylation.** *Chemical Communications* (Cambridge) (1999), (6), 489-490.
- (29) Naofumi Nakahara, Masafumi Hirano, Atsushi Fukuoka, Sanshiro Komiya.* **Synthesis and Structure of Thiolato Bridged Pt-Ti Heterobimetallic Complexes with Methyl Group.** *Journal of Organometallic Chemistry* (1999), 572(1), 81-85.
- (28) Masafumi Hirano, Miwa Hirai, Yuji Ito, Tsutomu Tsurumaki, Atsushi Baba, Atsushi Fukuoka, Sanshiro Komiya.* **N-bonded Enolatorhenium(I) Complexes Having Dimethylphenylphosphine Ligands as Active Key Intermediates in Catalytic Knoevenagel and Michael Reactions.** *Journal of Organometallic Chemistry* (1998), 569(1-2), 3-14.
- (27) Salvador G. Alvarez, Sachi Hasegawa, Masafumi Hirano, Sanshiro Komiya.* **Michael Reactions Promoted by η^1 -O-enolatoruthenium(II) Complexes Derived from Ru(cod)(cot), Diphosphine, and Dimethyl Malonate.** *Tetrahedron Letters* (1998), 39(29), 5209-5212.
- (26) Atsushi Fukuoka, Takeyuki Nagano, Shuichi Furuta, Michito Yoshizawa, Masafumi Hirano, Sanshiro Komiya.* **Tail-to-tail Dimerization of Acrylonitrile Catalyzed by Low-valent Ruthenium Complexes.** *Bulletin of the Chemical Society of Japan* (1998), 71(6), 1409-1415.
- (25) Hiroaki Kubo, Masafumi Hirano, Sanshiro Komiya.* **Synthesis, Structure and Reactivity of an (η^6 -naphthalene)iron(0) Complex Having a 1,2-bis(dicyclohexylphosphino)Ethane Ligand.** *Journal of Organometallic Chemistry* (1998), 556(1-2), 89-95.
- (24) Jose Giner Planas, Masafumi Hirano, Sanshiro Komiya.* **C-S bond Cleavage of Allyl Thioethers by Zerovalent Ru Complexes.** *Chemistry Letters* (1998), (2), 123-124.
- (23) Masafumi Hirano, Naoki Kurata, Tsuyoshi Marumo, Sanshiro Komiya.* **Successive O-C/O-H and sp^3 C-H Bond Activation of Ortho Substituents in Allyl Phenyl Ethers and Phenols by a Ruthenium(0) Complex.** *Organometallics* (1998), 17(4), 501-503.
- (22) Toshiyuki Yasuda, Atsushi Fukuoka, Masafumi Hirano, Sanshiro Komiya.* **Hydrogen Transfer in Pt-Mo Heterodinuclear Hydride Complexes Promoted by Alkynes.** *Chemistry Letters* (1998), (1), 29-30.
- (21) Masafumi Hirano, Masatoshi Akita, Takashi Morikita, Hiroaki Kubo, Atsushi Fukuoka, Sanshiro Komiya.* **Synthesis, Structure and Reactions of a Dinitrogen Complex of Iron(0), [Fe(N₂)(depe)₂] (depe = Et₂PCH₂CH₂PEt₂).** *Journal of the Chemical Society, Dalton Transactions* (1997), (19), 3453-3458.
- (20) Yoko Usui, Masafumi Hirano, Atsushi Fukuoka, Sanshiro Komiya.* **Hydrogen Abstraction from Transition Metal Hydrides by Gold Alkoxides Giving Gold-containing Heterodinuclear Complexes.** *Chemistry Letters* (1997), (10), 981-982.
- (19) Akira Miyashita, Atsushi Iwamoto, Tomoya Kuwayama, Hiroaki Shitara, Yoshio Aoki, Masafumi Hirano, Hiroyuki Nohira. **Synthesis and Diastereoselective Structural Change of a Photochromic Transition Metal Complex, (η^6 -spirobenzopyran)(tricarbonyl)Chromium.** *Chemistry Letters* (1997), (10), 965-966.

(18) Masafumi Hirano, Masatoshi Akita, Kazuo Tani, Kuninori Kumagai, Noriko C. Kasuga, Atsushi Fukuoka, Sanshiro Komiya.* **Activation of Coordinated Carbon Dioxide in Fe(CO)₂(depe)₂ by Group 14 Electrophiles.** *Organometallics* (1997), 16(19), 4206-4213.

(17) Atsushi Fukuoka, Sumiko Fukagawa, Masafumi Hirano, Sanshiro Komiya.* **Insertion of CO into a CH₃-Pd Bond in a Heterodinuclear Complex (dppe)MePd-Co(CO)₄. Preferential Insertion of Coordinated CO on a Cobalt Moiety.** *Chemistry Letters* (1997), (4), 377-378.

(16) Atsushi Fukuoka, Takeshi Sugiura, Toshiyuki Yasuda, Tomokazu Taguchi, Masafumi Hirano, Sanshiro Komiya. **Enhancement of β-hydrogen Elimination Reaction on Platinum-containing Heterodinuclear Complexes.** *Chemistry Letters* (1997), (4), 329-330.

(15) Masafumi Hirano, Tsuyoshi Marumo, Takashi Miyasaka, Atsushi Fukuoka, Sanshiro Komiya.* **Unexpected Ligand Displacement of Ru(cod) with Trimethylphosphine to Give Fac-Ru(6-η¹:1-3-η³-C₈H₁₀)(PMe₃)₃.** *Chemistry Letters* (1997), (4), 297-298.

(14) Sanshiro Komiya,* Takuo Sone, Yoko Usui, Masafumi Hirano, Atsushi Fukuoka. **Condensation Reactions of Benzaldehyde Catalyzed by Gold Alkoxides.** *Gold Bulletin* (London) (1996), 29(4), 131-136.

(13) Atsushi Fukuoka, Yutaka Minami, Nobumasa Nakajima, Masafumi Hirano, Sanshiro Komiya.* **Synthesis and Reactivity of Organoplatinum-rhenium Heterobimetallic Complexes Having Sulfur Ligands.** *Journal of Molecular Catalysis A: Chemical* (1996), 107(1-3), 323-328.

(12) Shun-Ichi Murahashi,* Takeshi Naota, Hiroshi Taki, Masahiko Mizuno, Hikaru Takaya, Sanshiro Komiya,* Yuji Mizuho, Naohiko Oyasato, Makiko Hiraoka, Masafumi Hirano, Atsushi Fukuoka. **Ruthenium-catalyzed Aldol and Michael Reactions of Nitriles. Carbon-carbon Bond Formation by α-C-H Activation of Nitriles.** *Journal of the American Chemical Society* (1995), 117(50), 12436-51.

(11) Atsushi Fukuoka, Naotaka Gotoh, Norikazu Kobayashi, Masafumi Hirano, Sanshiro Komiya.* **Homogeneous Bimetallic Catalysts for Production of Carboxylic Acids from Carbon Dioxide, Hydrogen, and Organic Iodides.** *Chemistry Letters* (1995), (7), 567-8.

(10) Atsushi Fukuoka, Akihiro Aato, Yuji Mizuho, Masafumi Hirano, Sanshiro Komiya.* **Synthesis and Structure of Novel Organo(siloxo)platinum Complexes. Facile Reduction by Dihydrogen.** *Chemistry Letters* (1994), (9), 1641-4.

(9) Sanshiro Komiya,* Takashi Kabasawa, Koji Yamashita, Masafumi Hirano, Atsushi Fukuoka. **C-O Bond Cleavage and Oxidative Addition of an Allyl Carboxylate to a Ruthenium(0) Complex. Isolation of (π-allyl)(trifluoroacetato)tris(triethylphosphine)ruthenium(II).** *Journal of Organometallic Chemistry* (1994), 471(1-2), C6-C7.

(8) Sanshiro Komiya,* Masatoshi Akita, Noriko Kasuga, Masafumi Hirano, Atsushi Fukuoka. **Synthesis, Structure and Reactions of a Carbon Dioxide Complex of Iron(0) Containing 1,2-bis(diethylphosphino)ethane Ligands.** *Journal of the Chemical Society, Chemical Communications* (1994), (9), 1115-16.

(7) Masafumi Hirano, Miwa Hirai, Yuji Ito, Atsushi Fukuoka, Sanshiro Komiya.* **Novel Catalytic Metathesis of Substituted Olefins Promoted by Rhenium(I) Enolate Complexes.** *Chemistry Letters* (1994), (1), 165-6.

(6) Masafumi Hirano, Yuji Ito, Miwa Hirai, Atsushi Fukuoka, Sanshiro Komiya.* **Synthesis of Novel Rhenium(I) Enolate Complexes as Active Key Intermediates in the Catalytic Aldol Type Reaction.** *Chemistry Letters* (1993), (12), 2057-60.

(5) Akira Miyashita,* Masafumi Hirano, Shinji Nakano, Hiroyuki Nohira. **Diode-laser Susceptible Photochromic Polymers: Synthesis and Photochemical Properties of Poly(methyl methacrylate) with Spirobenzothiopyrans as Side-groups.** *Journal of Materials Chemistry* (1993), 3(2), 221-2.

(4) Akira Miyashita,* Shinji Nakano, Masafumi Hirano, Hiroyuki Nohira. **Negative Photochromic Polymers. Synthesis and Photochemical Properties of Poly(methyl methacrylate) Having Spirobenzoselenazolinobenzopyran Side Groups.** *Chemistry Letters* (1993), (3), 501-4.

(3) Akira Miyashita,* Takeshi Hasegawa, Shinji Nakano, Masafumi Hirano, Hiroyuki Nohira. **Synthesis and Negative Photochromic Properties of Spirobenzoselenazolinobenzopyrans.** *Chemistry Express* (1993), 8(2), 93-6.

(2) Masafumi Hirano, Akira Miyashita,* Hiroaki Shitara, Hiroyuki Nohira. **Synthesis and Photochemical Properties of Novel Spirobenzoselenazolinebenzopyrans.** *Chemistry Letters* (1991), (11), 1873-6.

(1) Masafumi Hirano, Akira Miyashita,* Hiroyuki Nohira. **Synthesis and Metastable Structure of New Photochromic Spiroindolinobenzothiopyrans.** *Chemistry Letters* (1991), (2), 209-12.

2. 解説・総説リスト

- (17) 平野雅文, 電子材料, 医薬品の鍵構造をワンポット合成 —ブタジエンとアセチレン誘導体でつくる共役テトラエン—, 化学, Vol. 73, No. 5, (2018).
- (16) 出口 光、大槻恒太、中村沙季、平野雅文、川内 進、Ru(0)触媒による共役ジエンとスチレンのクロスカップリング反応における置換基効果の理論的解明、日本コンピュータ化学会誌、14/6, 215-216 (2015).(2016年2月24日公開)
- (15) 平野雅文、カルボキシラト遷移金属中間体を鍵とする炭素-水素結合活性化、トピックス、OM News、近畿化学協会、3, 74-79 (2015).
- (14) Masafumi Hirano* Sanshiro Komiya, **Oxidative Coupling Reactions at Ruthenium(0) and Their Applications to Catalytic Homo- and Cross-Dimerizations**, *Coord. Chem. Rev.* **314**, 182-200 (2016).
- (13) 小峰伸之、平野雅文、小宮三四郎、モノ (ホスフィン) パラジウム(0)錯体触媒による高活性Markovnikov型ヒドロメタル化反応：ヘテロ二核ヒドリドパラジウム中間体の合成と反応性、有機合成化学協会誌、5月p616-631 (2015).
- (12) 平野雅文、炭素-水素結合の水素をプロトンとして切断する、有機金属ハイライト、近畿化学協会、3, 109 (2013).
- (11) 平野雅文*、小峰伸之、小宮三四郎、0価ルテニウム錯体による置換アルケンおよびジエン類の鎖状カップリング反応：酸化的カップリング機構による化学、位置およびジアステレオ選択的炭素—炭素結合形成反応、有機合成化学協会誌、12月p31-44 (2012).
- (10) 平野雅文、共役カルボニル化合物のルテニウム(0)上での反応、月刊ファインケミカル、1月号、シーエムシー出版、(2010) pp59-63.
- (9) Sanshiro Komiya, Masafumi Hirano, **Ruthenium-Catalyzed Bond Cleavage Reactions**, *Ruthenium in Organic Chemistry*, Ed. Shun-ichi Murahashi, Wiley-VCH (Weinheim), 2004, pp.346-366.
- (8) 平野雅文、第5版 実験化学講座 2 1 巻 有機遷移金属化合物・超分子錯体：7族金属化合物、丸善、(2004) 151-177. ISBN:4 621 07320 6
- (7) Sanshiro Komiya, Masafumi Hirano. **Activation of Substrates with Polar Single Bonds**. *Current Methods in Inorganic Chemistry* (2003), 3(Fundamentals of Molecular Catalysis), Elsevier, 115-186. ISBN:0 444 50921 6, Amsterdam.
- (6) Masafumi Hirano. **Challenges in Copolymerization of Ethylene and Polar Vinyl Monomers by Transition Metal Complexes**. *Kagaku to Kogyo* (Tokyo, Japan) (2003), 56(4), 486.
- (5) Masafumi Hirano. **New Approaches to Synthesis of Carbene Complexes**. *Organometallic News* (2002), (1), 16.
- (4) Masafumi Hirano, Nobuyuki Komine, Sanshiro Komiya **Selective Bond Cleavage Reactions by Low-valent Ruthenium Complexes**. *Yuki Gosei Kagaku Kyokaiishi* (2002), 60(12), 1148-1157.

(3) Sanshiro Komiya, Atsushi Fukuoka, Masafumi Hirano. **An Organometallic Approach to Synergistic Effect in Catalysis; Synthesis and Reactions of Heterodinuclear Organotransition Metal Complexes.** Studies in Surface Science and Catalysis (1999), 121 (Science and Technology in Catalysis 1998), 133-138.

(2) Atsushi Fukuoka, Masafumi Hirano, Sanshiro Komiya. **Catalytic Chemistry of Organoheterodinuclear/cluster Complexes.** Shokubai (1996), 38(4), 281-286. CODEN: SHKUAJ
ISSN:0559-8958. CAN 125:142817 AN 1996:425106 CAPLUS

(1) Sanshiro Komiya, Masafumi Hirano: **Synthesis of Organometallic Compounds, A Practical Guide.** Group 8 Metal Compounds (1996) 159-218. Wiley, ISBN: 0 471 97070 0, England.

3. 特 許

(11) 平野雅文、小峰伸之、佐野浩介、小倉丈人、ビフェニルテトラカルボン酸テトラエステルの製造方法とそれに用いられるパラジウム金属錯体、特願2016-218005 (2016).

(10) 平野雅文、小峰伸之、小宮三四郎、触媒前駆体および不斉鎖状化合物の合成方法、特願2013-28947 (2013).

(9) Sanshiro Komiya, Masafumi Hirano, Naoko Awazu, Nobuyuki Komine. **Conducting Polymer-alloy Cluster Composite Electrodes as Catalysts for Fuel Cells and their Manufacture.** Jpn. Kokai Tokkyo Koho (2004), 11 pp. CODEN: JKXXAF JP 2004087426 A2 20040318 CAN 140:256287 AN 2004:219391 CAPLUS

(8) Sanshiro Komiya, Masafumi Hirano, Naoko Awazu, Nobuyuki Komine. **Conducting Polymer-metal Cluster Composite Electrodes as Catalysts for Fuel Cells and their Manufacture.** Jpn. Kokai Tokkyo Koho (2004), 11 pp. CODEN: JKXXAF JP 2004087427 A2 20040318 CAN 140:256288 AN 2004:219392 CAPLUS

(7) Susumu Suzuki, Akihiro Kobayashi, Sanshiro Komiya, Masafumi Hirano. **Catalysts for Radical Living Polymerization and Preparation of Methacrylic Acid Ester Polymers or Copolymers Thereof.** Jpn. Kokai Tokkyo Koho (1999), 5 pp. CODEN: JKXXAF JP 11322822 A2 19991126 Heisei. CAN 131:351809 AN 1999:751426 CAPLUS

(6) Akira Suzuki, Akihiro Kobayashi, Sanshiro Komiya, Masafumi Hirano. **Manufacture of Poly(methacrylic acid esters).** Jpn. Kokai Tokkyo Koho (1999), 6 pp. CODEN: JKXXAF JP 11310614 A2 19991109 Heisei. CAN 131:337538 AN 1999:715063 CAPLUS

(5) Sanshiro Komiya, Masafumi Hirano. **Iron Zero-valent Naphthalene Complexes, their Manufacture and Tetralin Compounds Made from them.** Jpn. Kokai Tokkyo Koho (1999), 4 pp. CODEN: JKXXAF JP 11255788 A2 19990921 Heisei. CAN 131:230273 AN 1999:603483 CAPLUS

(4) Sanshiro Komiya, Masafumi Hirano. **Preparation of (Z)-2-(1-propenyl)phenols.** Jpn. Kokai Tokkyo Koho (1999), 4 pp. CODEN: JKXXAF JP 11255691 A2 19990921 Heisei. CAN 131:228544 AN 1999:603450 CAPLUS

(3) Sanshiro Komiya, Masafumi Hirano. **Method for Preparation of 2H-1-benzopyrans by Oxidative Addition Reaction of 2-allylphenol-ruthenium (oxaruthenacycle) Complex with Iodine.** Jpn. Kokai Tokkyo Koho (1999), 4 pp. CODEN: JKXXAF JP 11228564 A2 19990824 Heisei. CAN 131:157707 AN 1999:531010 CAPLUS

(2) Sanshiro Komiya, Masafumi Hirano. **Preparation of Oxaruthenacycle Complexes.** Jpn. Kokai Tokkyo Koho (1999), 4 pp. CODEN: JKXXAF JP 11080182 A2 19990326 Heisei. CAN 130:252486 AN 1999:206909 CAPLUS

(1) Sanshiro Komiya, Atsushi Fukuoka, Masafumi Hirano. **Dimerization of Acrylonitrile by Using Ruthenium Compounds as Catalysts in a Solvent-free System.** Jpn. Kokai Tokkyo Koho (1997), 4 pp. CODEN: JKXXAF JP 09286769 A2 19971104 Heisei. CAN 128:3449 AN 1997:716021 CAPLUS

