

先進社会環境学専攻

基幹講座

資源戦略学講座

環境複合材料創成科学分野

【論文】

- Highly Crystalline Single-Walled Carbon Nanotube Field Emitters: Energy-Loss-Free High Current Output and Long Durability with High Power. [ACS Applied Electronic Materials, 1, 2019, 163-171] Norihiro Shimoi, Yoshinori Sato, Kazuyuki Tohji
- Work function, carrier type, and conductivity of nitrogen-doped single-walled carbon nanotube catalysts prepared by annealing via defluorination for efficient oxygen reduction reaction. [Carbon, 142, 2019, 518-527] Koji Yokoyama, Yoshinori Sato, Masashi Yamamoto, Tetsuo Nishida, Kenichi Motomiya, Kazuyuki Tohji, Yoshinori Sato

環境素材設計学分野

【論文】

- Adhesion behavior of microorganisms isolated from soil on hydroxyapatite and other materials. [Appl. Biochem. Biotechnol., 187, 2019, 984-993] Masanobu Kamitakahara, Shohei Takahashi, Taishi Yokoi, Chihiro Inoue, Koji Ioku
 - Experimental and computational study on sintering of ceramic coating layers with complex porous structures. [Journal of the American Ceramic Society, 103, 2020, 2035-2047] Sota Terasaka, Hideaki Matsubara, Takashi Shirato, Masanobu Kamitakahara, Taishi Yokoi, Norio Yamaguchi, Byung-Nam Kim
 - Inhibition Effect of Ti (C,N) Particle Dispersion on Grain Growth of WC-Co Cemented Carbide. [Materials Transactions, 60(5), 2019, 785-792] Masayuki Takada, Hideaki Matsubara, Yoshihiro Mori and Tetsushi Matsuda
 - Theoretical analysis of experimental densification kinetics in final sintering stage of nano-sized zirconia. [Journal of the European Ceramic Society, 39, 2019, 1359-1365] B.-N. Kim, T.S. Suzuki, K. Morita, H. Yoshida, J.-G. Ki, H. Matsubara
 - 分子動力学法によるアルミナーガラス系における界面エネルギーと拡散挙動の解析 [粉体および粉末冶金, 66(6), 2019, 266-274] 松本修次, 松原秀彰, 本多淳史
 - モンテカルロ法による液相存在下の焼結の計算機シミュレーション [粉体および粉末冶金, 66(6), 2019, 259-265] 松本修次, 松原秀彰, 清水正義, 野村浩
- 【総説・解説】
- 粉末冶金とは [新粉末冶金入門講座テキスト(粉体粉末冶金協会),

2019, 1-10] 松原秀彰

- 熱遮蔽コーティングの最近の研究・技術動向 [マテリアル, 58(7), 2019, 382-386] 松原秀彰

環境修復生態学分野

【論文】

- A multifunctional rhizobacterial strain with wide application in different ferns facilitates arsenic phytoremediation. [Science of the Total Environment, 712, 2020, 134504-134514] Chongyang Yang, Ying-Ning Ho, Ryota Makita, Chihiro Inoue, Mei-Fang Chien
- Chlorinated benzenes and benzene degradation in aerobic pyrite suspension. [Archives of Environmental Protection, 45(1), 2019, 115-125] Hoa Thi Pham, Inoue Chihiro
- Classification of coal fly ash based on pH, CaO content, glassy components, and leachability of toxic elements. [Environmental Monitoring and Assessment, 191, 2019, 358-368] Tsugumi Seki, Yasumasa Ogawa, Chihiro Inoue
- Comparative geochemical evaluation of toxic metals pollution and bacterial communities of industrial effluent tributary and a receiving estuary in Nigeria. [Chemosphere, 227, 2019, 638-646] Ganiyu O. Oyetibo, Keisuke Miyauchi, Yi Huang, Wakako Ikeda-Ohtsubo, Mei-Fang Chien, Matthew O. Ilori, Olukayode O. Amund, Ginro Endo
- *Cupriavidus basilensis* strain r507, a toxic arsenic phytoextraction facilitator, potentiates the arsenic accumulation by *Pteris vittata*. [Ecotoxicology and Environmental Safety, 190, 2019] Chongyang Yang, Ying-Ning Ho, Ryota Makita, Chihiro Inoue, Mei-Fang Chien
- Efficient nitrate removal from water using selected cathodes and Ti/PbO₂ anode: Experimental study and mechanism verification. [Separation and Purification Technology, 216, 2019, 158-165] Xufeng Rao, Xiaolin Shao, Jie Xua, Jin Yi, Jinli Qiao, Qingyu Li, Hongqiang Wang, Mei-Fang Chien, Chihiro Inoue, Yuyu Liu, Jiujuan Zhang
- Enhanced degradation of polycyclic aromatic hydrocarbons (PAHs) in the rhizosphere of sudangrass (*Sorghum × drummondii*). [Chemosphere, 234, 2019, 789-795] John Jewish A. Dominguez, Hernando P. Bacosa, Mei-Fang Chien, and Chihiro Inoue
- Enrichment and analysis of stable 1,4-dioxane-degrading microbial consortia consisting of novel dioxane-degraders. [Microorganisms, 8, 2020, 50-60] Tanmoy Roy Tusher, Takuya Shimizu, Chihiro Inoue and Mei-Fang Chien
- Hydroponic approach to assess rhizodegradation by sudangrass (*Sorghum × drummondii*) reveals pH- and plant age-dependent variability in bacterial degradation of polycyclic aromatic hydrocarbons (PAHs). [Journal of

Hazardous Materials, 387, 2020, 121695-121705] John Jewish A. Dominguez, Chihiro Inoue and Mei-Fang Chien

- Identification of a novel arsenic resistance transposon nested in a mercury resistance transposon of *Bacillus* sp. MB24. [Microorganisms, 7(11), 2019, 566-576] Mei-Fang Chien, Ying-Ning Ho, Hui-Erh Yang, Masaru Narita, Keisuke Miyauchi, Ginro Endo, Chieh-Chen Huang
- MerB3, an organomercurial lyase of *Bacillus* as an antidote against organomercurial poisoning. [Journal of Environmental Biotechnology, 19(1), 2019, 73-80] Mei-Fang Chien, Ying-Ning Ho, Hui-Tzu Lin, Kuo-Hsing Lin, Ginro Endo, Chieh-Chen Huang
- Phosphorus- and iron-deficiency stresses affect arsenic accumulation and root exudates in *Pteris vittata*. [International Journal of Environmental Science and Development, 10(12), 2019, 430-434] Chongyang Yang, Mei-Fang Chien, Ying-Ning Ho, Chihiro Inoue
- Simultaneous removal of lead(II) and nitrate from water at low voltage. [Journal of Water Process Engineering, 32, 2019, 100940-100940] Xufeng Rao, Qingyu Li, Chihiro Inoue, Irshad Ahmad, Jin Yi, Yuyu Liu, Jiujuan Zhang
- Simultaneous removal of lead(II) and nitrate from water at low voltage by using aluminum and iron electrodes. [Chemosphere, in press] Xufeng Rao, Xiaolin Shao, Jinli Qiao, Hongqiang Wang, Qingyu Lid, Jiawei Sheng, Mei-Fang Chien, Chihiro Inoue, Jin Yi, Yuyu Liu, Jiujuan Zhang

地球物質・エネルギー学分野

【論文】

- Acceleration of hydrogen production along water-olivine-CO₂ reactions via high-temperature Fe(II) release. [International Journal of Hydrogen Energy, 44(23), 2019, 11514-11524] Wang, Jiajie; Watanabe Noriaki; Okamoto, Atsush; Nakamura, Kengo; Komai, Takeshi;
- Brine infiltration in the middle to lower crust in a collision zone: Mass transfer and microtexture development through wet grain-boundary diffusion. [Journal of Petrology, 60(2), 2019, 329-358] Higashino, F., Kawakami, T., Tsuchiya, N., Satish-Kumar, M., Ishikawa, M., Grantham, G.H., Sakata, S., Hirata, T.
- Cloud-fracture networks as a means of accessing superhot geothermal energy [Scientific Reports, 9 (Article number: 939), 2019] Noriaki Watanabe, Kiyotoshi Sakaguchi, Ryota Goto, Takahiro Miura, Kota Yamane, Takuya Ishibashi, Youqing Chen, Takeshi Komai, Noriyoshi Tsuchiya
- Enhanced hydrogen production with carbon storage by olivine alteration in CO₂-rich hydrothermal environments. [Journal of CO₂ Utilization, 30, 2019, 205-213] Wang J. , Watanabe N., Okamoto, A., Nakamura, K., Komai, T.
- Enhancement of permeability activated by supercritical fluid flow through granite. [Geofluids, Article ID 6053815, 2019, 1-16] Tsuyoshi Nohara, Masaoki Uno, Noriyoshi Tsuchiya
- Evaluation of caldera hosted geothermal potential during volcanism and magmatism in subduction system, NE Japan.

[Geofluids, Article ID 3031586, 2019] Fajar F. Amanda, Ryoichi Yamada, Masaoki Uno, Satoshi Okumura, and Noriyoshi Tsuchiya

- Evidence for multiple stages of serpentinization from the mantle through the crust in the Redwood City Serpentinite mélange along the San Andreas Fault in California. [Lithos, 336-337(15), 2019, 276-292] Masaoki Uno, Stephen Kirby
- Fault weakening caused by smectite swelling. [Earth, Planets and Space, 71, 2019, 131-131] Jun Kameda, Masaoki Uno, Marianne Conin, Kohtaro Ujiie, Yohei Hamada, Gaku Kimura
- Formation of secondary olivine after orthopyroxene during hydration of mantle wedge: evidence from the Khantaishir Ophiolite, western Mongolia. [Contributions to Mineralogy and Petrology, 174(86), 2019, 1-22] Otgonbayar Dandar, Atsushi Okamoto, Masaoki Uno, Ryosuke Oyanagi, Takayoshi Nagaya, Ulziiburen Burenjargal, Tsuyoshi Miyamoto, Noriyoshi Tsuchiya
- Fractionation of rare earth elements (REEs) and actinides(U and Th) originating from acid thermal water during artificial and natural neutralization processes of surface waters. [Geochimica Cosmochimica Acta, 249, 2019, 247-262] Yasumasa Ogawaa, Daizo Ishiyama, Naotatsu Shikazono, Kenta Iwane, Tomonori Hoshino, Masahiro Kajiwara, Noriyoshi Tsuchiya, Bernhard Saini-Eidukat, Scott A. Wood
- Geological and engineering features of developing ultra-high-temperature geothermal systems in the world. [Geothermics, 82, 2019, 267-281] Okamoto, K, Asanuma, H., Ishibashia, T., Yamaya, Y., Saishua, H., Yanagisawa, N., Mogi, T., Tsuchiya, N., Okamoto, A., Naganawa, S., Ogawa, Y., Ishitsuka, K., Fujimitsu, Y., Kitamura, K., Kajiwara, T., Horimoto, S., Shimadai, K.
- Mechanisms and possible applications of the Al-H₂O reaction under extreme pH and low hydrothermal temperatures. [International Journal of Hydrogen Energy, 44(57), 2019, 29903-29921] Vani Novita Alviani, Putri Setiani, Masaoki Uno, Masahiro Oba, Nobuo Hirano, Noriaki Watanabe, Noriyoshi Tsuchiya, Hanae Saishu
- Pyroxene control of H₂ production and carbon storage during water-peridotite-CO₂ hydrothermal reactions. [International Journal of Hydrogen Energy, 44(49), 2019, 26835-26847] Wang J., Watanabe N., Okamoto, A., Nakamura, K., Komai, T.
- Silica nanoparticles produced by explosive flash vaporization during earthquakes. [Scientific Reports, 9, 2019, 9738-9747] Takashi Amaga, Atsushi Okamoto, Takamasa Niibe, Nobuo Hirano, Kenichi Motomiya & Noriyoshi Tsuchiya
- Stabilizing and enhancing permeability for sustainable and profitable energy extraction from superhot geothermal environments. [Applied Energy, 260(15), 2020 114306] Noriaki Watanabe, Kohei Saito, Atsushi Okamoto, Kengo Nakamura, Takuya Ishibashi, Hanae Saishu, Takeshi Komai, and Noriyoshi Tsuchiya
- Trace element compositions of amphiboles in gabbro mylonites from the Godzilla Megamullion, Parece Vela Basin, Philippine Sea. [Lithos, 344, 2019, 217-231] Harigane Y., Okamoto A, Morishita T, Snow JE, Tamura A, Yamashita H, Michibayashi K, Ohara Y, Arai S
- Utilization of Geothermal Hot Spring for Hydrogen Production

by Al-H₂O Hydrothermal Reaction. [日本地熱学会誌, 41(3), 2019, 101-108] Vani Novita Alviani, Takuya Kosaka, Masahiro Uno, Masahiro Oba, Nobuo Hirano, Noriaki Watanabe, Noriyoshi Tsuchiya and Hanae Saishu

●盛岡市繋温泉地期における中新統デイサイト質火砕岩類中の石英の熱発光挙動と地熱探査. [日本地熱学会誌, 41, 2019, 15-26] 斉藤遼一, 宍倉美里, 赤塚貴史, 梶原竜哉, 平野伸夫, 土屋範芳

●脆性から延性を示す条件下における単一き裂を有する模擬岩石の力学挙動と浸透率. [Journal of MMIJ (Web), 135(3), 2019, 25-30] 武山詳, 坂口清敏, 渡邊則昭, 土屋範芳

【総説・解説】

●エルサルバドルにおける地熱開発促進と人材育成. [資源・素材 (Web), 2019] 山岸裕幸, 土屋範芳

●機械学習を用いた地熱地域の温度構造推定手法の開発. [資源・素材 (Web), 2019] 石塚師也, 小林洋介, 宇郷翼, 鈴木浩一, 茂木透, 渡邊教弘, 山谷祐介, 岡本京祐, 村田泰章, 浅沼宏, 鈴木杏奈, 岡本敦, 土屋範芳, 北村圭吾, 梶原竜哉, 杉本健, 斎藤遼一

●講座：汎用機器を用いた土壌分析の現在 ―電磁波を用いた分析― 2. 蛍光 X 線分析法による土壌中の多元素の同時ないし迅速逐次分析 [日本土壌肥料学雑誌, 90(6), 2019, 461-467] 山崎慎一

地球開発環境学分野

【論文】

● Mechanical Behavior Comparison of Cemented Sludge Reinforced by Waste Material and Several Crop Residues. [Journal of Advanced Experimental Mechanics, 4, 2019, 186-191] Thanh Nga DUONG, Tomoaki SATOMI and Hiroshi TAKAHASHI

● Tensile behaviors of natural fiber and cement reinforced soil subjected to direct tensile test. [Journal of Building Emgineering, 24, 2019, 1-10] Khiem Quang Tran, Tomoaki Satomi, Hiroshi Takahashi

●繊維質固化処理土の強度定数に関する研究. [テラメカニクス, 39, 2019, 95-98] 高橋弘, 窪田春香, 松島昂汰, 里見知昭

●軟弱泥土のパケット掘削における抵抗力と地盤強度に関する研究. [テラメカニクス, 39, 2019, 117-122] 高橋裕介, 里見知昭, 高橋弘

地球開発環境学分野（坂口研）

【論文】

● Cloud-fracture networks as a means of accessing superhot geothermal energy [Scientific Reports, 9 (Article number: 939), 2019] Noriaki Watanabe, Kiyotoshi Sakaguchi, Ryota Goto, Takahiro Miura, Kota Yamane, Takuya Ishibashi, Youqing Chen, Takeshi Komai, Noriyoshi Tsuchiya

●脆性から延性を示す条件下における単一き裂を有する模擬岩石の力学挙動と浸透率. [Journal of MMIJ, 135(3), 2019, 25-30] 武山祥, 坂口清敏, 渡邊則昭, 土屋範芳

エネルギー資源学講座

分散エネルギーシステム学分野

【論文】

● Achievements of NEDO Durability Projects on SOFC Stacks in the Light of Physicochemical Mechanisms. [Fuel Cells, 19(4), 2019, 311-339] Yokokawa H, Suzuki M, Yoda M, Suto T, Tomida K, Hiwatashi K, Shimazu M, Kawakami A, Sumi H, Ohmori M, Ryu T, Mori N, Iha M, Yatsuzuka S, Yamaji K, Kishimoto H, Develos-Bagarinao K, Shimonosono T, Sasaki K, Taniguchi S, Kawada T, Muramatsu M, Terada K, Eguchi K, Matsui T, Iwai H, Kishimoto M, Shikazono N, Mugikura Y, Yamamoto T, Yoshikawa M, Yasumoto K, Asano K, Matsuzaki Y, Sato K, Somekawa T.

● Contraction of Porous Nickel during Low Temperature Oxidation. [ECS Transactions, 91(1), 2019, 1979-1984] Yutaro Morishita, Fei Zhao, Satoshi Watanabe, Keiji Yashiro, Tatsuya Kawada

● Correlation between Electrode Reaction and Chromium Deposition in SOFC Cathodes. [ECS Transactions, 91(1), 2019, 1231-1237] Shota Kageyama, Yusuke Shindo, Yoshinobu Fujimaki, Keita Mizuno, Yuta Kimura, Takashi Nakamura, Fumitada Iguchi, Keiji Yashiro, Hiroo Yugami, Tatsuya Kawada, Koji Amezawa

● Evaluation Method of Current Distribution in SOFC in Operation. [ECS Transactions, 91(1), 2019, 579-588] Takashi Tsuchikura, Tadashi Sakamoto, Tenyo Zukawa, Hirofumi Sumi, Kazuhisa Sato, Keiji Yashiro, Toshiyuki Hashida, Tatsuya Kawada

● Evaluation of electrochemical properties of LaNi_{0.6}Fe_{0.4}O_{3-δ} - Ce_{0.9}Gd_{0.1}O_{1.95} composite as air electrode for SOFC. [Solid State Ionics, 332, 2019, 70-76] Budiman R.A, Hashimoto S, Fujimaki Y, Nakamura T, Yashiro K, Amezawa K, Kawada T.

● Evaluation of Titanium Based Alloys as Interconnects for the Light Weight SOFC System. [ECS Transactions, 91(1), 2019, 2279-2290] Keiko Kobayashi, Ryuichi Miyata, Keiji Yashiro, Hitoshi Takamura, Kyosuke Yoshimi, Tatsuya Kawada, Shinichi Hashimoto, Keiichi Okai

● Material Development Strategy of Lightweight Solid Oxide Fuel Cells for Airplane System Electrification. [ECS Transactions, 91(1), 2019, 311-318] Shinichi Hashimoto, Tomohisa Hirota, Kenji Suzuki, Tomoaki Namioka, Hibiki Ito, Ryuichi Miyata, Keiko Kobayashi, Keiji Yashiro, Hitoshi Takamura, Tatsuya Kawada, Kyosuke Yoshimi, Norito Kijima, Takaaki Manabe, Tetsuo Tsuchiya, Takayuki Kojima, Keiichi Okai

● Study of CaTiO₃ Based Ionic Conductors for Lightweight SOFCs. [ECS Transactions, 91(1), 2019, 1217-1222] Kenji Suzuki, Yuna Kouchi, Tomohisa Hirota, H Kato, Tomoaki Namioka, Hibiki Ito, Hyun-Jin Hong, Keiji Yashiro, Tatsuya Kawada, Keiichi Okai, Shinichi Hashimoto

● Variation of Mechanical Properties of YSZ upon Cubic to Tetragonal Phase Transformation Promoted by Impurity Ni. [ECS Transactions, 91(1), 2019, 837-845] Hitomi Umemura, Chikara Sekizawa, Satoshi Watanabe, Keiji Yashiro, Tatsuya Kawada

エネルギー資源リスク評価学分野

【論文】

● A Case Study of Natural Attenuation of Chlorinated Solvents Under Unstable Groundwater Conditions in Takahata, Japan. [Bulletin of Environmental Contamination and Toxicology, 102(2), 2019, 280-286] Yoshishige Kawabe, Takeshi Komai, Takeshi Komai

● Acceleration of hydrogen production during water-olivine-CO₂ reactions via high-temperature-facilitated Fe(II) release. [International Journal of Hydrogen Energy, 44(23), 2019, 11514-11524] J. Wang, N. Watanabe, A. Okamoto, K. Nakamura, T. Komai

● Cloud-fracture networks as a means of accessing superhot geothermal energy. [Scientific Reports, 9(939), 2019, 1-11] Noriaki Watanabe, Kiyotoshi Sakaguchi, Ryota Goto, Takahiro Miura, Kota Yamane, Takuya Ishibashi, Youqing Chen, Takeshi Komai, Noriyoshi Tsuchiya

● Construction of a conceptual model for confined groundwater flow in the Gunii Khooloi Basin, Southern Gobi Region, Mongolia. [Hydrogeology Journal, 27(2), 2019, 1-16] Batdemberel Bayanzul, Kengo Nakamura, Isao Machida, Noriaki Watanabe, Komai Takeshi

● Enhanced hydrogen production with carbon storage by olivine alteration in CO₂-rich hydrothermal environments. [Journal of CO₂ Utilization, 30(3), 2019, 205-213] J. Wang, N. Watanabe, A. Okamoto, K. Nakamura, T. Komai

● Geochemical Investigation of Metals and Trace Elements around the Abandoned Cu-Ni Mine Site in Selibe Phikwe, Botswana. [Journal of Geoscience and Environment Protection, 7(5), 2019, 275-293] Fiona S. Motswaiso, Kengo Nakamura, Noriaki Watanabe, Takeshi Komai

● Local non-vuggy modeling and relations among porosity, permeability and preferential flow for vuggy carbonates. [Engineering Geology, 258(8), 2019, 197-206] N. Watanabe, H. Kusanagi, T. Shimazu, M. Yagi

● Mechanisms and possible applications of the Al-H₂O reaction under extreme pH and low hydrothermal temperatures. [International Journal of Hydrogen Energy, accepted] V. N. Alviani, P. Setiani, M. Uno, M. Oba, N. Hirano, N. Watanabe, N. Tsuchiya, H. Saishu

● NaHCO₃-promoted olivine weathering with H₂ generation and CO₂ sequestration in alkaline hydrothermal system. [Earth and Environmental Science, 257(12017), 2019, 1-7] J Wang, K Nakamura, N Watanabe, A Okamoto and T Komai

● Numerical Study on Enhanced Gas Recovery from Methane Hydrate Reservoir During In-situ Heating Process by Acid Injection. [International Journal of Offshore and Polar Engineering, 29(3), 2019, 347-358] Yasuhide Sakamoto, Fuyuki Kaneko, Yusuke Nakano, Kengo Nakamura, Takeshi Komai

● Pyroxene control of H₂ production and carbon storage during water-peridotite-CO₂ hydrothermal reactions. [International Journal of Hydrogen Energy, 44(49), 2019, 26835-26847] Jiajie Wang, Noriaki Watanabe, Atsushi Okamoto, Kengo Nakamura, Takeshi Komai

● Three-dimensional channeling flow within subsurface rock fracture networks suggested via fluid flow analysis in the Yufutsu fractured oil/gas reservoir. [Journal of Petroleum Science and Engineering, 178, 2019, 838-851] T. Ishibashi, N. Watanabe, T. Tamagawa, N. Tsuchiya

●脆性から延性を示す条件下における単一き裂を有する 模擬岩石の力学挙動と浸透率. [Journal of MMIJ, 135(3), 2019, 25-30] 武山詳, 坂口清敏, 渡邊則昭, 土屋範芳

●津波堆積物に含有する重金属等の化学組成と地下水・土壌への影響. [日本地下水学会誌, 61(1), 2019, 47-54] 駒井武

●難透水性地盤におけるバイオレメディエーションのための浄化促進剤投入方式 に関するウォータージェットを用いた現場実証試験. [地盤工学ジャーナル, 14(2), 2019, 149-159] 上沢進, 張銘, Robert C. Borden, 駒井武

●難透水性地盤におけるバイオレメディエーションのための浄化促進剤投入方式に関する研究 ―基本性能に関する理論的検討―. [地盤工学ジャーナル, 14(2), 2019, 141-148] 上沢進, 張銘, 駒井武

【総説・解説】

●豊洲市場土壌汚染問題の教訓. [環境管理, 55(6), 2019, 26-33] 駒井武

環境共生機能学分野

【論文】

● Aqueous Chemical Synthesis and Consolidation of Size-Controlled Bi₂Te₃ Nanoparticles for Low-Cost and High-Performance Thermoelectric Materials. [JOURNAL OF ELECTRONIC MATERIALS, 48(5), 2019, 2700-2711] Nakamoto Tatsuichiro, Yokoyama Shun, Takamatsu Tomohisa, Harata Koichi, Motomiya Kenichi, Takahashi Hideyuki, Miyazaki Yuzuru, Tohji Kazuyuki

● Bandgap engineering of NiWO₄/CdS solid Z-scheme system via an ion-exchange reaction. [APPLIED CATALYSIS B-ENVIRONMENTAL, 241, 2019, 284-291] Li Mingjie, Yokoyama Shun, Takahashi Hideyuki, Tohji Kazuyuki

● Designed synthesis of highly catalytic Ni-Pt nanoparticles for fuel cell applications. [SN Applied Sciences, 1:124, 2019] K. Taniguchi, K. Shinoda, Jhon L. Huaman, S. Yokoyama, M. Uchikoshi, T. Matsumoto, K. Suzuki, H. Miyamura, B. Jeyadevan

● Electricity Generation by a Methanogen Cathode Microbial Fuel Cell. [Journal of Animal Production Environment Science, 19, 2019, in press] Masaki UMETSU, Yasuhiro FUKUDA, Hideyuki TAKAHASHI, Chika TADA

● Functional Group Distribution of the Carrier Surface Influences Adhesion of Methanothermobacter thermautotrophicus. [Archaea, 2019] Masaki Umetsu, Takaaki Sunouchi, Yasuhiro Fukuda, Hideyuki Takahashi and Chika Tada

● Surface treatment of Cu nanowires using hydroxy acids to form oxide-free Cu junctions for high-performance transparent conductive films. [Colloids and Surfaces A: Physicochemical and Engineering Aspects, 583(20), 2019,

123939] Shun Yokoyama, Honoka Kimura, Hiroki Oikawa, Kenichi Motomiya; Balachandran Jeyadevan, Hideyuki Takahashi,

国際エネルギー資源学分野

【論文】

- Contradictory but also complementary: National and local imaginaries in Japan and Fukushima around transitions to hydrogen and renewables. [Energy Research & Social Science, 49, 2019, 209-218] Trencher, Gregory; van der Heijden, Jeroen
- Discursive resistance to phasing out coal-fired electricity: Narratives in Japan's coal regime. [Energy Policy, 132, 2019, 782-796] Trencher, G., N. Healy, K. Hasegawa & J. Asuka
- Instrument interactions and relationships in policy mixes: Achieving complementarity in building energy efficiency policies in New York, Sydney and Tokyo. [Energy Research & Social Science, 54, 2019, 34-45] Gregory Trencher, Jeroen van der Heijden
- Understanding Nature through Photography: An Empirical Analysis of the Intents of Nature Photographers and the Preparatory Process. [Environmental Communication, 13(8), 2019, 1053-1068] Naoyuki Ohara, Yasuhiro Yamanaka, Gregory Trencher
- Stretching "smart": advancing health and well-being through the smart city agenda. [Local Environment, 24, 2019, 610-627] Trencher, G. & A. Karvonen
- Transformative capacity and local action for urban sustainability. [Ambio, 8, 2019, 449-462] Castán Broto, V., G. Trencher, E. Iwaszuk & L. Westman
- Towards the smart city 2.0: Empirical evidence of using smartness as a tool for tackling social challenges. [Technological Forecasting & Social Change, 142, 2019, 117-128] Trencher, G.

環境政策学講座

環境・エネルギー経済学分野

【論文】

- An estimation of the amount of dissipated alloy elements in special steel from automobile recycling. [MATERIAUX & TECHNIQUES, 107(1), 2019] Zhang Zhengyang, Takeyama Kentaro, Ohno Hajime, Matsubae Kazuyo, Nakajima Kenichi, Nagasaka Tetsuya
- Estimating Tsunami Economic Losses of Okinawa Island with Multi-Regional-Input-Output Modeling. [GEOSCIENCES, 9(8), 2019] Pakoksung Kwanchai, Suppasri Anawat, Matsubae Kazuyo, Imamura Fumihiko
- Global Distribution of Used and Unused Extracted Materials Induced by Consumption of Iron, Copper, and Nickel. [ENVIRONMENTAL SCIENCE & TECHNOLOGY, 53(3), 2019,

1555-1563] Nakajima Kenichi, Noda Shoichiro, Nansai Keisuke, Matsubae Kazuyo, Takayanagi Wataru, Tomita Makoto

- Mining, land restoration and sustainable development in isolated islands: An industrial ecology perspective on extractive transitions on Nauru. [AMBIO, 48(4), 2019, 397-408] Clifford Martin J., Ali Saleem H., Matsubae Kazuyo

寄附講座 (DOWA ホールディングス)

環境物質政策学講座

環境物質政策学分野

【論文】

- Conductive Effect of Increased Crystallinity of Single-Walled Carbon Nanotubes as Field Emitter. [Perspective of Carbon Nanotubes, 1(1), 2019, 1-18] SHIMOI Norihiro
 - Field-emission durability employing highly crystalline single-walled carbon nanotubes in a low vacuum with activated gas. [Journal of Physics D: Applied Physics, 52, 2019, 505303-505303] Norihiro Shimoi, Kazuyuki Tohji
 - Highly Crystalline Single-Walled Carbon Nanotube Field Emitters: Energy Loss-Free High Current Output and Long Durability with High Power. [ACS Applied Electronic Materials, 2019(1), 2019, 163-171] Norihiro Shimoi, Yoshinori Sato, Kazuyuki Tohji
 - Nonthermal crystal bridging of ZnO nanoparticles by nonequilibrium excitation reaction of electrons and plasma without cross-linking agent on plastic substrate. [Journal of Alloys and Compounds, 797(15), 2019, 676-683] Norihiro Shimoi, Shun-Ichiro Tanaka
 - Selection of optimum binder for powder silicon anode in lithium-ion batteries based on the impact of its molecular structure on charge-discharge behaviour. [Coatings, 9(11), 2019, 732-732] SHIMOI, Norihiro
 - Simple planar field-electron emitter using highly crystalline single-walled carbon nanotubes in a triode structure with in-plane under-gate electrode. [Journal of Vacuum Science & Technology B, 37(2), 2019, 021201-1] Shoichi Kumon, Norihiro Shimoi
- 【著書】
- Perspective of Carbon Nanotubes. [InTech-open science, 2019] Norihiro Shimoi, etc
 - カーボンナノチューブの表面処理・分散技術と複合化事例。(『カーボンナノチューブを利用した電子材料の開発』) [技術情報協会, 2019] 下位法弘 ほか
- 【特許】
- ZnO 薄膜の製造方法、透明電極の製造方法、ZnO 薄膜、および透明電極 [特願 2019-228641] 下位法弘, 田中俊一郎

連携講座

環境リスク評価学分野

【論文】

- Geological and engineering features of developing ultra-high-temperature geothermal systems in the world. [Geothermics,82, 2019, 267-281] Kyosuke Okamoto, Hiroshi Asanuma, Takuya Ishibashi, Yusuke Yamaya, Hanae Saishu, Norio Yanagisawa, Toru Mogi, Noriyoshi Tsuchiya, Atsushi Okamoto, Shigemi Naganawa, Yasuo Ogawa, Kazuya Ishitsuka, Yasuhiro Fujimitsu, Keigo Kitamura, Tatsuya Kajiwara, Seiki Horimoto, Kuniaki Shimada
- Groundwater response to tidal fluctuations in a leaky confined coastal aquifer with a finite length [Hydrological Processes, 33, 2019, 2551-2560] Zhixue Zhao, Xiaoguang Wang, Yonghong Hao, Tongke Wang, Abderrahim Jardani, Herve Jourde, Tian-Chyi Jim Yeh, Ming Zhang
- Numerical Study on the Application of In-situ Low Temperature Oxidation for Enhanced Recovery from Methane Hydrate Reservoir [INTERNATIONAL JOURNAL OF OFFSHORE AND POLAR ENGINEERING (In press)] Yasuhide Sakamoto, Fuyuki Kaneko, Yusuke Nakano, Kengo Nakamura, Takeshi Komai
- Numerical Study on Enhanced Gas Recovery from Methane Hydrate Reservoir during In Situ Heating Process by Acid Injection [INTERNATIONAL JOURNAL OF OFFSHORE AND POLAR ENGINEERING, 29(3), 2019, 347-358] Yasuhide Sakamoto, Fuyuki Kaneko, Yusuke Nakano, Kengo Nakamura, Takeshi Komai
- 難透水性地盤におけるバイオレメディエーションのための浄化促進剤投入方式に関するウォータージェットを用いた現場実証試験 [地盤工学ジャーナル, 14(2), 2019, 149-159] 上沢進, 張銘, Robert C. Borden, 駒井武
- 難透水性地盤におけるバイオレメディエーションのための浄化促進剤投入方式に関する研究 [地盤工学ジャーナル, 14(2), 2019, 141-148] 上沢進, 張銘, 駒井武

都市環境・環境地理学講座

自然 / 人間環境地理学分野

【論文】

- Associations of neighborhood walkability with intensity and about-specific physical activity and sedentary behavior of older adults in Japan. [Geriatrics & gerontology international, 2019, 861-867] Amagasa S, Inoue S, Fukushima N, Kikuchi H, Nakaya T, Hanibuchi T, Sallis JF, Owen N
- Cognitive Function of Elderly Persons in Japanese Neighborhoods: The Role of Street Layout. [American journal of Alzheimer's disease and other dementias, 34(6), 2019, 381-389] Koohsari MJ, Nakaya T, McCormack GR, Shibata A, Ishii K, Yasunaga A, Oka K
- Diet Quality Affects the Association between Census-Based Neighborhood Deprivation and All-Cause Mortality in Japanese Men and Women: The Japan Public Health Center-Based Prospective Study. [Nutrients 11(9), 2019, pii: E2194. doi:10.3390/nu11092194] Kurotani K, Honjo K, Nakaya T, Ikeda A, Mizoue T, Sawada N, Tsugane S, Japan, Public Health Center-based Prospective Study Group
- Dog-walking in dense compact areas: The role of neighbourhood built environment. [Health and Place, 2019(Epub ahead of print)] Mohammad Javad Koohsari, Tomoki Nakaya, Gavin R. McCormack, Ai Shibata, Kaori Ishii, Akitomo Yasunaga, Yung Liao, Koichiro Oka
- Equality of Treatment for Hip Fracture Irrespective of Regional Differences in Socioeconomic Status: Analysis of Nationwide Hospital Claims Data in Japan. [The Tohoku journal of experimental medicine, 247(3), 2019, 161-171] Tomioka S, Fujino Y, Nakaya T, Ohtani M, Kubo T, Matsuda S
- Evidence for urban design and public health policy and practice: Space Syntax metrics and neighborhood walking. [Health and Place, 2019(Epub ahead of print)] Gavin R. McCormack, Mohammad Javad Koohsari, Liam Turley, Tomoki Nakaya, Ai Shibata, Kaori Ishii, Akitomo Yasunaga, Koichiro Oka
- Factors influencing the proportion of non-examinees in the Fukushima Health Management Survey for childhood and adolescent thyroid cancer: Results from the baseline survey. [Journal of epidemiology, 2019, Article ID: JE20180247] Takahashi K, Takahashi H, Nakaya T, Yasumura S, Ohira T, Ohto H, Ohtsuru A, Midorikawa S, Suzuki S, Shimura H, Yamashita S, Tanigawa K, Kamiya K
- Population-Based Cohort Study on Health Effects of Asbestos Exposure in Japan. [Cancer science, 110, 2019, 1076-1084] Zha L, Kitamura Y, Kitamura T, Liu R, Shima M, Kurumatani N, Nakaya T, Goji J, Sobue T
- Post-disaster health issues and coastal infrastructure reconstruction after the Great East Japan Earthquake and

Tsunami. [ASM Science Journal Special Issue, 2019 (in press)] Tashiro, A., Nakaya, T.

- The importance of scale in spatially varying coefficient modeling. [Annals of the American Association of Geographers, 109(1), 2019, 50-70] Murakami, D., Lu, B., Harris, P., Brunson, C., Charlton, M., Nakaya, T., & Griffith, D. A.
 - Urban design and Japanese older adults' depressive symptoms. [Cities, 87, 2019, 166-173] Koohsari, M. J., McCormack, G. R., Nakaya, T., Shibata, A., Ishii, K., Yasunaga, A., Hanibuchi, T., Oka, K.
 - Virtual audits of streetscapes by crowdworkers. [Health and Place, 2019(Epub ahead of print)] Hanibuchi T, Nakaya T, Inoue S.
 - Walkable Urban Design Attributes and Japanese Older Adults' Body Mass Index: Mediation Effects of Physical Activity and Sedentary Behavior. [American Journal of Health Promotion, Vol. 33(5), 2019, 764-767] Koohsari, M. J., Kaczynski, A. T., Nakaya, T., Shibata, A., Ishii, K., Yasunaga, A., Stowe, E.W., Hanibuchi, T., and Oka, K.
 - Walking-friendly built environments and objectively measured physical function in older adults. [Journal of Sport and Health Science, 2019(Epub ahead of print)] Koohsari, M. J., McCormack, G. R., Nakaya, T., Shibata, A., Ishii, K., Yasunaga, A., Liao, Y. & Oka, K.
 - 近年の新聞報道からみた全国の社寺における盗難および放火・不審火被害の時期的・地域的傾向. [歴史都市防災論文集, 13, 2019, 171-178] 谷崎友紀, 中谷友樹
 - マングローブ生態系の機能・サービスと Human wellbeing との関連: インドネシアのエコツーリズムビレッジを事例として. [環境情報科学学術研究論文集 33, 2019, 259-264] 田代藍, シティ・ズライハ・ナウアウイ, 中谷友樹
- 【総説・解説】
- ウォーカービリティと健康な街. [日本不動産学会誌, 2019, 160, 73-78] 中谷友樹, 埴淵知哉
 - 都市空間における格差と健康. [都市計画, 340, 2019, 48-51] 中谷友樹
- 【著書】
- The Atlas of Health Inequalities in Japan. [Springer, 2019] Nakaya, T. and Ito, Y. eds.
 - 都市内集住地 (3) 名古屋市・豊田市・四日市市・京都市. [石川義孝編『地図でみる日本の外国人 改訂版』ナカニシヤ出版, 2019, 58-59] 中谷友樹

太陽地球システム・エネルギー学講座

資源利用プロセス学分野

【論文】

- Effect of Types of Carbonaceous Material and CaO Addition on Reduction Behavior of Pre-reduced Iron Ore-Carbon Composite. [ISIJ International, 59, 2019, 1011-1017] Taichi Murakami, Hiroto Shinomiya, Daisuke Maruoka, Eiki Kasai

- Morphology Change and Carburization Characteristic of Iron Ore-Coal Composite During Reduction under a Simulated Condition of Blast Furnace. [ISIJ International, 59 (11), 2019, 1982-1990] Tsung-Yen Huang, Daisuke Maruoka, Taichi Murakami, Eiki Kasai
- 鉄鉱石の造粒過程における鉱石粒子内部への水分移動挙動. [鉄と鋼, 105(11), 2019, 1033-1041] 樋口隆英, Liming LU, 葛西栄輝

地球システム計測学分野

【論文】

- Chlorine partitioning near the polar vortex boundary observed with ground-based FTIR and satellites at Syowa Station, Antarctica in 2007 and 2011. [Atmos. Chem. Phys. Discuss., acp-2019-443] Hideaki Nakajima, Isao Murata, Yoshihiro Nagahama, Hideharu Akiyoshi, Kosuke Saeki, Takeshi Kinase, Masanori Takeda, Yoshihiro Tomikawa, and Nicholas B. Jones
- Contribution of horizontal and vertical advection to the formation of small-scale vertical structures of ozone in the lower and middle stratosphere at Fairbanks, Alaska. [Atmos. Chem. Phys. Discuss., acp-2019-837] Miho Yamamori, Yasuhiro Murayama, Kazuo Shibasaki, Isao Murata, and Kaoru Sato

水資源システム学分野

【論文】

- Assays for specific growth rate and cell-binding ability of rotavirus. [Journal of Visualized Experiments, 143(e58821), 2019] Syun-suke Kadoya, Daisuke Sano
- Fecal source tracking in a wastewater treatment and reclamation system using membrane bioreactor evidenced by molecular epidemiology of multiple waterborne gastroenteritis viruses. [Pathogens, 8(4), 2019, 170-170] Zheng Ji, Xiaochang C. Wang, Limei Xu, Chongmiao Zhang, Cheng Rong, Andri Taruna Rachmadi, Mohan Amarasiri, Satoshi Okabe, Naoyuki Funamizu, Daisuke Sano
- Predictive water virology: Hierarchical Bayesian modeling for estimating virus inactivation curve. [Water, 11(10), 2019, 2187-2187] Syun-suke Kadoya, Osamu Nishimura, Hiroyuki Kato, Daisuke Sano
- Revisiting the effects of powdered activated carbon on membrane fouling mitigation in an anaerobic membrane bioreactor by evaluating long-term impacts on the surface layer. [Water Research, 167, 2019, 115137-115137] Zhen Lei, Shuming Yang, Xiang Li, Wen Wen, Xingyuan Huang, Yuan Yang, Xiaochang Wang, Yu-You Li, Daisuke Sano, Rong Chen
- Sign-constrained linear regression for prediction of microbe concentration based on water quality datasets. [Journal of Water and Health, 17(3), 2019, 404-415] Tsuyoshi Kato, Ayano Kobayashi, Wakana Oishi, Syun-suke Kadoya,

Satoshi Okabe, Naoya Ohta, Mohan Amarasiri, Daisuke Sano

- Specific interactions between human norovirus and environmental matrices: Effects on the virus ecology. [Viruses, 11(3), 2019, 224-224] Mohan Amarasiri, Daisuke Sano
 - Specific interactions of rotavirus HAL1166 with Enterobacter cloacae SENG-6 and their contribution on rotavirus HAL1166 removal. [Water Science and Technology, 79(2), 2019, 342-348] Mohan Amarasiri, Hiroki Kawai, Masaaki Kitajima, Satoshi Okabe, Daisuke Sano
 - 各戸導入型小型水供給設備の利用における水安全計画的アプローチによる健康リスク管理. [土木学会論文集, accepted] 門屋俊祐, 牛島健, 伊藤竜生, 長谷川祥樹, 三浦尚之, 秋葉道宏, 西村修, 佐野大輔
- 【著書】
- A QMRA Framework for Sanitation Treatment Decisions. [http://www.waterpathogens.org/book/a-QMRA-framework-for-sanitation-treatment-decisions, 2019] Daisuke Sano, Carles N. Haas, Joan B. Rose

自然共生システム学講座

資源再生プロセス学分野

【論文】

- A combined kinetic and thermodynamic approach for interpreting the complex interactions during chloride volatilization of heavy metals in municipal solid waste fly ash. [Waste Management, 87, 2019, 204-217] 倉島健太, 松田佳歩, 熊谷将吾, 亀田知人, 齋藤優子, 吉岡敏明
- Adsorption of Cu²⁺ and Ni²⁺ by Oxalic Acid Crosslinked Chitosan-modified Montmorillonite. [Soft Materials, 2019] Tomohito Kameda, Mao Takaizumi, Shogo Kumagai, Yuko Saito, Toshiaki Yoshioka
- Adsorption of Cu²⁺ and Ni²⁺ by tripolyphosphate-crosslinked chitosan-modified montmorillonite. [Journal of Solid State Chemistry, 277, 2019, 143-148] Tomohito Kameda, Reina Honda, Shogo Kumagai, Yuko Saito, Toshiaki Yoshioka
- Adsorption of urea, creatinine, and uric acid onto spherical activated carbon. [Separation and Purification Technology, 237, 2019, 116367-116367] Tomohito Kameda, Kazuya Horikoshi, Shogo Kumagai, Toshiaki Yoshioka
- Beech Wood Pyrolysis in Polyethylene Melt as a Means of Enhancing Levoglucosan and Methoxyphenol Production. [SCIENTIFIC REPORTS, 9(1955), 2019] Shogo Kumagai, Kohei Fujita, Yusuke takahashi, Yumi Nakai, Tomohito Kameda, Yuko saito & Toshiaki Yoshioka
- Deducing targets of emerging technologies based on ex ante life cycle thinking: Case study on a chlorine recovery process for polyvinyl chloride wastes. [Resources, Conservation and Recycling, 151, 2019, 104500-104500] Jiaqi Lu, Shogo Kumagai, Hajime Ohno, Tomohito Kameda, Yuko Saito, Toshiaki Yoshioka, Yasuhiro Fukushima
- Degradation of PVC waste into a flexible polymer by chemical modification using DINP moieties. [RSC Advances,

9(49), 2019, 28870-28875] Lihui Lu, Shogo Kumagai, Tomohito Kameda, Ligang Luo, Toshiaki Yoshioka

● Effects of acetic acid pretreatment and pyrolysis temperatures on product recovery from Fijian sugarcane bagasse. [Waste and Biomass Valorization, 2019] Viliame Savou, Shogo Kumagai, Tomohito Kameda, Yuko Saito, Toshiaki Yoshioka

● Hydrogen and steam injected tandem μ -reactor GC/FID system: Phenol recovery from bisphenol A and alkylphenols using Ni/Y zeolite. [Reaction Chemistry & Engineering, 4(12), 2019, 2099-2107] Shogo Kumagai, Masaki Asakawa, Tomohito Kameda, Yuko Saito, Atsushi Watanabe, Norio Teramae, Chuichi Watanabe, Toshiaki Yoshioka

● Impact of Common Plastics on Cellulose Pyrolysis. [Energy & Fuels, 33(7), 2019, 6837-6841] Shogo Kumagai, Miki Yamamoto, Yusuke Takahashi, Tomohito Kameda, Yuko Saito, Toshiaki Yoshioka

● Impacts of pyrolytic interactions during the co-pyrolysis of biomass/plastic: Synergies in lignocellulose-polyethylene system. [Journal of the Japan Institute of Energy, 98, 2019, 202-219] Shogo Kumagai, Kohei Fujita, Yusuke Takahashi, Tomohito Kameda, Yuko Saito, Toshiaki Yoshioka

● Mg-Al layered double hydroxide intercalated with CO_3^{2-} and its recyclability for treatment of SO_2 . [Applied Clay Science, 2019] Tomohito Kameda, Masahito Tochinal, Shogo Kumagai, Toshiaki Yoshioka

● Practical dechlorination of polyvinyl chloride wastes in NaOH/ethylene glycol using an up-scale ball mill reactor and validation by discrete element method simulations. [Waste Management, 99, 2019, 31-41] 陸嘉喜, 欺琴高娃, 熊谷将吾, 亀田知人, 齋藤優子, 吉岡敏明

● Pyrolysis of sugarcane bagasse pretreated with sulfuric acid. [Journal of the Energy Institute, 92(4), 2019, 1149-1157] V. Savou, S. Kumagai, G. Grause, T. Kameda, Y. Saito, T. Yoshioka

● Removal of Mn and Cd contained in mine wastewater by Mg-Al-layered double hydroxides. [Journal of Material Cycles and Waste Management, 21(5), 2019, 1232-1241] Mir Tamzid Rahman, Tomohito Kameda, Takao Miura, Shogo Kumagai, Toshiaki Yoshioka

● Separation mechanism of polyvinyl chloride and copper components from swollen electric cables by mechanical agitation. [Waste Management, 93, 2019, 54-62] 陸嘉喜, 徐静, 熊谷将吾, 亀田知人, 齋藤優子, 吉岡敏明

● Separation of copper and polyvinyl chloraide from thin waste electric cables:A combined PVC-swelling and centrifugal approach. [Waste Management, 89, 2019, 27-36] 徐静, 熊谷将吾, 亀田知人, 齋藤優子, 高橋憲史, 林浩志, 吉岡敏明

● Simultaneous recovery of H_2 -rich syngas and removal of HCN during pyrolytic recycling of polyurethane by Ni/Mg/Al catalysts. [Chemical Engineering Journal, 361, 2019, 408-415] 熊谷将吾, 矢吹良介, 亀田知人, 齋藤優子, 吉岡敏明

● Temperature-dependent pyrolysis behavior of polyurethane elastomers with different hard- and soft-segment

compositions. [Journal of Analytical and Applied Pyrolysis, 145, 2019, 104754-104754] Yuya Nishiyama, Shogo Kumagai, Suguru Motokucho, Tomohito Kameda, Yuko Saito, Atushi Watanabe, Hisayuki Nakatani, Toshiaki Yoshioka

● Treatment of NOx using recyclable CO_3^{2-} -intercalated Mg-Al layered double hydroxide. [Atmospheric Pollution Research, 10(6), 2019, 1866-1872] Tomohito Kameda, Masahito Tochinal, Shogo Kumagai, Toshiaki Yoshioka

● Uptake of heavy metal cations by chitosan-modified montmorillonite: Kinetics and equilibrium studies. [Materials Chemistry and Physics, 236, 2019, 121784-121784] Tomohito Kameda, Reina Honda, Shogo Kumagai, Yuko Saito, Toshiaki Yoshioka

● Uptake of Ni^{2+} and Cu^{2+} by Zn-Al layered double hydroxide intercalated with carboxymethyl-modified cyclodextrin: Equilibrium and kinetic studies. [Materials Chemistry and Physics, 233, 2019, 288-295] 亀田知人, 高泉真央, 熊谷将吾, 齋藤優子, 吉岡敏明

●動脈産業と静脈産業の協働による持続可能なプラスチックリサイクルシステムの構築. [環境情報科学, 48(3), 2019, 39-44] 吉岡敏明, 齋藤優子, 熊谷将吾

【総説・解説】

●球核体を用いたポリ塩化ビニルの化学修飾. [月刊ファインケミカル, 48(6), 2019, 49-59] 吉岡敏明

環境分析化学分野

【論文】

● Capillary electrophoretic reactor for estimation of spontaneous dissociation rate of Trypsin-Aprotinin complex. [Anal. Biochem., 585, 2019, 113406-113406] Yumiko Sasaki, Yosuke Sato, Toru Takahashi, Mitsuo Umetsu, and Nobuhiko Iki

● Facile Preparation of Highly Luminescent Materials by Electrostatic Immobilization of Anionic Metal Complex onto Anion-Exchanger as Exemplified with Tri-Terbium(III) Cluster Complex of Thiocalix[4]arene-*p*-tetrasulfonate. [Bulletin of the Chemical Society of Japan, 92(11), 2019, 1847-1852] Narumi Shiraiishi ,Ryunosuke Karashimada , and Nobuhiko Iki

【総説・解説】

● Speciation of Chromium. [Analytical Sciences, 35(1), 2019, 1-2] Iki Nobuhiko

● Central Scienceとしての分析化学. [ぶんせき, 15, 2019, 185-185] 壹岐伸彦

●化学の感動を共有する喜び. [化学と工業, 72(9), 791-791] 壹岐伸彦
●がんのセラノスティクスを志向した Pt(II)- グラジカル金属錯体の設計. [電子情報通信学会技術研究報告, 119(15), 2019, 9-12] 澤村瞭太, 鈴木敦子, 壹岐伸彦

環境生命機能学分野

● A highly sensitive endotoxin sensor based on redox cycling in a nanocavity. [Analyst, 144, 2019, 3659-3667, 10.1039/

C9AN00478E] Kentaro Ito, Kumi Y. Inoue, Kosuke Ino, Tomokazu Matsue, Hitoshi Shiku

● Combination of double-mediator system with large-scale integration-based amperometric devices for detecting NAD(P)H:quinone oxidoreductase 1 activity of cancer cell aggregates. [ACS Sensors, 4(6), 2019, 1619-1625, Selected as a supplementary cover, 10.1021/acssensors.9b00344] Kosuke Ino, Takehiro Onodera, Mika T. Fukuda, Yuji Nashimoto, Hitoshi Shiku

● Differential electrochemicolor imaging using LSI-based device for simultaneous detection of multiple analytes. [Sensors and Materials, 31(1), 2019, 13-22. Selected as a cover, 10.18494/SAM.2019.2035] Kosuke Ino, Takehiro Onodera, Yuji Nashimoto, Hitoshi Shiku

● Electric and electrochemical microfluidic devices for cell analysis. [Frontiers in Chemistry, 7, (2019), 396, 10.3389/fchem.2019.00396] Kaoru Hiramoto, Kosuke Ino, Yuji Nashimoto, Kentaro Ito, Hitoshi Shiku

● Electrochemical biosensing system for single cells,cellular aggregates and microenvironments. [Analytical Sciences, 35(1), 2019, 29-38, 10.2116/analsci.18SDR01] Hitoshi Shiku

● Electrochemical fabrication of fibrin gels via cascade reaction for cell culture. [Chemical Communications, 55, 2019, 5335-5338. Selected as a back cover, 10.1039/C9CC01576K] Noriko Taira, Kosuke Ino, Tatsuki Kumagai, Yuji Nashimoto, Hitoshi Shiku

● Electrochemical imaging of cell activity in hydrogels embedded in grid-shaped polycaprolactone scaffolds using a large-scale integration (LSI)-based amperometric device. [Analytical Sciences, 35(1), 2019, 39-43, 10.2116/analsci.18SDP01] Kosuke Ino, Yuki Yokokawa, Noriko Taira, Atsushi Suda, Ryota Kunikata, Yuji Nashimoto, Tomokazu Matsue, Hitoshi Shiku

● Electrodeposition-based rapid bioprinting of 3D-designed hydrogels with a pin art device. [Biofabrication, 11, 2019, 035018, 10.1088/1758-5090/ab166e] Noriko Taira, Kosuke Ino, Hiroki Ida, Yuji Nashimoto, Hitoshi Shiku

● Genipin crosslinking of electrodeposited chitosan/gelatin hydrogels for cell culture. [Chemistry Letters, 48, 2019, 1178-1180, 10.1021/acs.analchem.9b02062] Ayako Tamura, Kaoru Hiramoto, Kosuke Ino, Noriko Taira, Yuji Nashimoto, Hitoshi Shiku

● Scanning electrochemical cell microscopy for visualization and local electrochemical activities of lithium-ion (de) intercalation process in lithium-ion battery electrodes. [Surface and Interface Analysis, 51, 2019, 27-30, 10.1002/sia.6538] Akichika Kumatani, Yasufumi Takahashi, Chiho Miura, Hiroki Ida, Hirotaka Inomata, Hitoshi Shiku, Hirokazu Munakata, Kiyoshi Kanamura, Tomokazu Matsue

● Site-specific cytosol sampling from a single cell in an intact tumor spheroid using an electrochemical syringe. [Analytical Chemistry, 91(14), 2019, 8772-8776, Selected as a cover, 10.1021/acs.analchem.9b02062] Yuji Nashimoto, Masakuni Echigo, Kosuke Ino, Hitoshi Shiku

●走査型イオンコンダクタンス顕微鏡による多項目ナノイメージング. [高分子, 68 巻, 12 月号, 2019] 梨本裕司, 平典子, 伊野浩介, 珠玖仁

●電気化学計測デバイスを用いた細胞の消費物・分泌物評価. [Electrochemistry, 87, 323-328, 2019, 10.5796/denkikagaku.19-FE0032] 平本薫, 伊野浩介, 梨本裕司, 珠玖仁

資源循環プロセス学講座

環境グリーンプロセス学分野

【論文】

● Application of the Preferential Solvation Viscosity Model to Binary Liquid Mixtures: Aqueous, Nonaqueous, Ionic Liquid, and Deep Eutectic Solvent Systems. [Industrial and Engineering Chemistry Research, 58, 2019, 14991-15002] Alif Duereh, Yoshiyuki Sato, Richard Lee Smith, Hiroshi Inomata

● Black liquor-derived calcium-activated biochar for recovery of phosphate from aqueous solutions. [Bioresource Technology, 294, 2019] Xiaoning Liu, Feng Shen, Richard L. Smith, Xinhua Qi

● Correction to “Correspondence between Spectral-Derived and Viscosity-Derived Local Composition in Binary Liquid Mixtures Having Specific Interactions with Preferential Solvation Theory” [Journal of Physical Chemistry B, 123(1), 2019, 325-325] Alif Duereh, Yoshiyuki Sato, Richard Lee Smith, Hiroshi Inomata

● Efficient catalytic transfer hydrogenation of biomass-based furfural to furfuryl alcohol with recyclable Hf-phenylphosphonate nanohybrids. [Catalysis Today, 319, 2019, 84-92] Hu Li, Yan Li, Zhen Fang, Richard L. Smith

● Hydrogen gas-free processes for single-step preparation of transition-metal bifunctional catalysts and one-pot γ -valerolactone synthesis in supercritical CO_2 -ionic liquid systems. [Journal of Supercritical Fluids, 147, 2019, 263-270] Haixin Guo, Yuya Hiraga, Xinhua Qi, Richard Lee Smith

● Measurement and correlation of vapor-liquid distribution coefficients of flavonoids in high pressure carbon dioxide-ethanol-water systems. [Fluid Phase Equilibria, 489, 2019, 90-98] Soma Sato, Masaki Ota, Yoshiyuki Sato, Richard Lee Smith, Hiroshi Inomata

● Measurement and modeling of infinite dilution activity coefficients of organic compounds in an equimolar ionic liquid mixture of [Bmim]Cl and [Bmim][Tf₂N]. [Fluid Phase Equilibria, 488, 2019, 72-78] Tomoka Shida, Yuya Hiraga, Takuya Sugiyama, Yoshiyuki Sato, Masaru Watanabe, Richard L. Smith

● Methane clathrate hydrate dissociation analyzed with Raman spectroscopy and a thermodynamic mass transfer model considering cage occupancy. [Fluid Phase Equilibria, 489, 2019, 41-47] Hiroyuki Komatsu, Takuya Sasagawa, Shinichiro Yamamoto, Yuya Hiraga, Masaki Ota, Takao Tsukada, Richard L. Smith

● N-formyl-stabilizing quasi-catalytic species afford rapid and selective solvent-free amination of biomass-derived feedstocks. [Nature Communications, 10, 2019] Hu Li, Haixin Guo, Yaqiong Su, Yuya Hiraga, Zhen Fang, Emiel J.M. Hensen, Masaru Watanabe, Richard Lee Smith

● Supercritical carbon dioxide extraction of α -mangostin from mangosteen pericarp with virgin coconut oil as co-extractant and *in-vitro* bio-accessibility measurement. [Process Biochemistry, 2019] Wan Jun Lee, Chea Chi Ng, Jin Shuen Ng, Richard Lee Smith, Siew Lee Kok, Yen Yi Hee, Sin Yee Lee, Wei Kiat Tan, Nur Hanani Zainal Abidin, Sarina Abdul Halim Lim, Gun Hean Chong

循環材料プロセス学分野

【論文】

● Acoustic cavitation assisted plasma for wastewater treatment: Degradation of Rhodamine B in aqueous solution. [Ultrasonics Sonochemistry, 52, 2019, 318-325] Yu Fang, Daiki Hariu, Takuya Yamamoto, Sergey Komarov

● Complex permittivity and microwave heating behavior of rod-shaped SiC and oxide (SiO₂, Al₂O₃) mixtures. [Materiala Chemistry and Physics, 234, 2019, 281-287] Noboru Yoshikawa, Kohsaku Seki, Naoki Inoue, Sergey Komarov, Kei-ichirou Kashimura, Takashi Fujii, Hideoki Fukushima

● Development of a Numerical Model for Hydrogen Bubble Generation, Dynamics and Trapping during Solidification of Aluminum Alloys through Eulerian-Lagrangian Framework. [International Journal of Cast Metals Research, accepted] T. Yamamoto, S. Komarov

● Evaluation of mass transfer in an aluminum melting furnace stirred mechanically during flux treatment. [Materials Transaction, 60(9), 2019, 2008-2015] Kenya Kato, Takuya Yamamoto, Sergey Komarov, Ryosuke Taniguchi, Yasuo Ishiwata

● Fragmentation of cavitation bubble in ultrasound filed under small pressure amplitude. [Ultrasonics Sonochemistry, 58, 2019, 104684] T. Yamamoto, S. Hatanaka, S. V. Komarov

● Investigation on the surface vortex formation during mechanical stirring with an axial-flow impeller used in an aluminum process. [Metallurgical and Materials Transactions B, 50(6), 2019, 2547-2556] T. Yamamoto, W. Kato, S. V. Komarov, Y. Ishiwata

● Liquid jet directionality and droplet behavior during emulsification of two liquids due to acoustic cavitation. [Ultrasonics Sonochemistry, accepted] T. Yamamoto, S. Komarov

● Mechanism of small bubble breakup in an unbaffled stirred vessel. [Chemical Engineering Science, 197, 2019, 26-36] Takuya Yamamoto, Yu Fang, Sergey V. Komarov

● Numerical investigation of the effect of heating rate on InGaSb crystal growth under zero-gravity. [Microgravity Science and Technology, 31, 2019, 377-380] X. Jin, A. Sekimoto,

Y. Okano, T. Yamamoto, Y. Hayakawa, Y. Inatomi, S. Dost

● Numerical investigation of the nano-scale solute Marangoni convections. [Journal of the Taiwan Institute of Chemical Engineers, 98, 2019, 20-26] Y. Imai, T. Yamamoto, A. Sekimoto, Y. Okano, R. Sato, Y. Shigeta

● Role of acoustic streaming in formation of unsteady flow in billet sump during ultrasonic DC casting of aluminum alloys. [Materials, 12(21), 2019, 3532] S. Komarov, T. Yamamoto

● Single bubble fragmentation in a mechanically stirred liquid bath under trailing vortex conditions. [Chemical Engineering Science, 207, 2019, 1007-1016] T. Yamamoto, S. V. Komarov

● Surface vortex formation and free surface deformation in an unbaffled vessel stirred by on-axis and eccentric impellers. [Chemical Engineering Journal, 367, 2019, 25-36] Takuya Yamamoto, Yu Fang, Sergey V. Komarov

● The effect of crucible rotation and crucible size in top-seeded solution growth of single crystal silicon carbide. [Crystal Research and Technology, 54(5), 2019, 1900014] T. Horiuchi, L. Wang, A. Sekimoto, Y. Okano, T. Yamamoto, T. Ujihara, S. Dost

【著書】

● Development and application of large-sized sonotrode systems for ultrasonic treatment of molten aluminum alloys. [Light Metals 2019, The Minerals, Metals and Materials Series, 1597-1604] S. Komarov, T. Yamamoto

● Investigation on acoustic streaming during ultrasonic irradiation in aluminum melts. [Light Metals 2019, The Minerals, Metals and Materials Series, 1527-1531] T. Yamamoto, S. Komarov

環境創成計画学講座

環境分子化学分野

【論文】

● Methane clathrate hydrate dissociation analyzed with Ramanspectroscopy and a thermodynamic mass transfer model considering cage occupancy. [Fluid Phase Equilibria, 489, 2019, 41-47] H. Komatsu, T. Sasagawa, S. Yamamoto, Y. Hiraga, M. Ota, T. Tsukada, R.L. Smith

● Measurement and correlation of vapor-liquid distribution coefficients of flavonoids in high pressure carbon dioxide-ethanol-water systems. [Fluid Phase Equilibria, 489, 2019, 90-98] Soma Sato, Masaki Ota, Yoshiyuki Sato, Richard L. Smith Jr., Hiroshi Inomata

●二酸化炭素 - エタノール - 精油系の高圧気液平衡に基づく向流接触抽出実験 . [化学工学論文集, 2019] 生内良樹, 上野裕介, 星野友貴, 大田昌樹, 佐藤善之, 猪股宏

●連動式自動背圧弁の開発と亜臨界分離技術への応用 . [Jasco Report, 61(1), 2019, 30-35] 大田昌樹, 前田雄也, 菅原啓, 星野友貴, 佐藤颯真, 生内良樹, 上野裕介

【著書】

●高温高圧状態における基礎物性の相関・推算と抽出プロセスの設

計 (『分離工程の操作条件最適化とスケールアップ』) [(株) 技術情報協会, 2019] 大田昌樹, 青山裕紀

【総説・解説】

●安心かつ安全な食品製造のための新たな抽出技術の開発 . [浦上財団研究報告書, 26, 2019] 大田昌樹

●医薬食品製造に向けた高圧気液平衡に基づく新しい抽出分離技術の開発 . [研究成果報告書, 2019] 大田昌樹

●過去の研究助成金採択者からの近況報告 . [Le Cercle de TOBE MAKI 創刊号, 1, 2019, 1-1] 大田昌樹

●藻類のミルキング培養法による省エネ型バイオ燃料生産プロセスの開発 . [IFO Research Communication (平成 29 年度一般研究助成の研究報告), 33, 2019, 18-19] 大田昌樹

●天然物抽出分離のための高圧二酸化炭素の応用 . [化学工学会東北支部ニューズレター, 2019] 大田昌樹

環境材料表面科学分野

【論文】

● Effective Surface Termination with Au on PtCo@Pt Core-Shell Nanoparticle: Microstructural Investigations and Oxygen Reduction Reaction Properties. [Journal of Electroanalytical Chemistry, 842(1), 2019, 1-7] Shuntaro Takahashi, Naoto Todoroki, Rikiya Myochi, Tetsuro Nagao, Noboru Taguchi, Tsutomu Ioroi, Felix E. Feiten, Yuki Wakisaka, Kiyotaka Asakura, Oki Sekizawa, Tomohiro Sakata, Kotaro Higashi, Tomoya Uruga, Yasuhiro Iwasawa, Toshimasa Wadayama

● Electrochemical CO₂ Reduction on Bimetallic Surface Alloys: Enhanced Selectivity to CO for Co/Au(110) and to H₂ for Sn/Au(110). [ChemElectroChem, 6(12), 2019, 3101-3107] Naoto Todoroki, Hiroki Tei, Taku Miyakawa, Hiroto Tsurumaki, Toshimasa Wadayama

● Heterolayered Ni-Fe Hydroxide/Oxide Nanostructures Generated on a Stainless-Steel Substrate for Efficient Alkaline Water Splitting. [ACS Applied Materials and Interfaces, 11, 2019, 44161-44169] Naoto Todoroki, Toshimasa Wadayama

● Ligand-Effect-Induced Oxygen Reduction Reaction Activity Enhancement for Pt/Zr/Pt(111) Surfaces with Tensile Strain Relieved by Stacking Faults. [ACS Applied Energy Materials, 2(7), 2019, 4597-4601] Daisuke Kudo, Soma Kaneko, Rikiya Myochi, Yoshihiro Chida, Naoto Todoroki, Tadao Tanabe, Toshimasa Wadayama

● Oxygen Reduction Reaction Activity of Nano-Flake Carbon-Deposited Pt75Ni25(111) Surfaces. [Electrocatalysis, 10(3), 2019, 232-242] Naoto Todoroki, Ren Sasakawa, Keisuke Kusunoki, Toshimasa Wadayama

● Surface Atomic Arrangement Dependence of Electrochemical CO₂ Reduction on Gold: Online Electrochemical Mass Spectrometric Study on Low-Index Au(hkl) Surfaces. [ACS catalysis, 9(2), 2019, 1383-1388] Naoto Todoroki, Hiroki Tei, Hiroto Tsurumaki, Taku Miyakawa, Tatsuhiko Inoue, Toshimasa Wadayama

【総説・解説】

●東北大学環境材料表面科学研究室—電極触媒モデルのドライプロセ

ス合成と評価— . [燃料電池, 18, 2019, 82-86] 轟直人, 和田山智正

●表面科学的視点に基づくエネルギー物質変換触媒の開発 . [まてりあ, 58(6), 2019, 328-332] 轟直人

●よく規定された合金系電極触媒表面モデルのドライプロセス合成と特性評価 . [電気化学, Autumn, 2019, 250-257] 轟直人, 和田山智正

連携講座

環境適合材料創製学分野

【論文】

● Influence of Sn on Practical Performances of Structural Steels [Proceedings of the 5th World Congress on Mechanical, Chemical, and Material Engineering (MCM'19), Lisbon, Portugal, 15-17 August, 2019, MMME (117-1)-(117-7)] Kazuki Inujima, Kazutoshi Ichikawa

● Microstructural diagram for steel based on crystallography with machine learning [Computational Materials Science 159, 2019, 403-411] K. Tsutsui, H. Terasaki, T. Maemura, K. Hayashi, K. Moriguchi, and S. Morito.

● Risk Analysis of Ship Collision considering Striking Ship Velocity and Plate Ductility, [Developments in the Collision and Grounding of Ships and Offshore Structures, Marine Technology and Ocean Engineering Series, Volume 4, 2019, 364-373] Yasuhira Yamada, Hiroshi Ochi and Kazutoshi Ichikawa.

● Verification of Crashworthiness of Highly Ductile Steel by Large-Scale Model Tests [Developments in the Collision and Grounding of Ships and Offshore Structures, Marine Technology and Ocean Engineering Series, Volume 4, 2019, 34-39] Teppei Okawa, Kazutoshi Ichikawa, Hiroshi Shimanuki, Shingo Nakamura, Naoki Oda and Yasuhira Yamada.

【総説・解説】

●低炭素鋼溶接部ミクロ組織の機械学習に関する研究 [溶接学会誌 88 (7), 2019, 536-539], 寺崎秀紀, 筒井和政, 森口晃治, 林宏太郎, 森戸茂一

地球環境変動学分野

【論文】

● Analysis of the Diurnal, Weekly, and Seasonal Cycles and Annual Trends in Atmospheric CO₂ and CH₄ at Tower Network in Siberia from 2005 to 2016. [Atmosphere, 10(11), 2019, 689] Belikov, D., M. Arshinov, B. Belan, D. Davydov, A. Fofonov, M. Sasakawa and T. Machida

● Assessment of spatio-temporal distribution of CO₂ over greater Asia using the WRF-CO₂ model. [Journal of Earth System Science, JESS-D-19-00295R1, in press] Ballav, S., M. Naja, P.K. Patra, T. Machida and H. Mukai

● Chlorine partitioning near the polar vortex boundary observed with ground-based FTIR and satellites at Syowa Station, Antarctica in 2007 and 2011. [Atmos. Chem. Phys.

Discuss., in review] Nakajima, H., I. Murata, Y. Nagahama, H. Akiyoshi, K. Saeki, T. Kinase, M. Takeda, Y. Tomikawa, and N. B. Jones

● Chlorine partitioning near the polar vortex edge observed with ground-based FTIR and satellites at Syowa Station, Antarctica in 2007 and 2011. [Atmos. Chem. Phys., in press] Nakajima, H., I. Murata, Y. Nagahama, H. Akiyoshi, K. Saeki, T. Kinase, M. Takeda, Y. Tomikawa, E. Dupuy, and N. B. Jones

● Development of a balloon-borne instrument for CO₂ vertical profile observations in the troposphere. [Atmos. Meas. Tech., 12, 2019, 5639-5653] Ouchi, M., Matsumi, Y., Nakayama, T., Shimizu, K., Sawada, T., Machida, T., Matsueda, H., Sawa, Y., Morino, I., Uchino, O., Tanaka, T., and Imasu, R.

● Global carbon budgets estimated from atmospheric O₂/N₂ and CO₂ observations in the western Pacific region over a 15-year period. [Atmos. Chem. Phys., 19, 2019, 9269-9285] Tohjima, Y., Mukai, H., Machida, T., Hoshina, Y., and Nakaoka, S.

● Interannual Variation of Upper Tropospheric CO over the Western Pacific Linked with Indonesian Fires. [SOLA, Vol. 15, 2019, 205-210] Matsueda, H., R. Buchholz, K. Ishijima, H. Worden, D. Hammerling, and T. Machida

● Methane Emission Estimates by the Global High-Resolution Inverse Model Using National Inventories. [Remote Sens., 11, 2019, 2489] Wang, F., S. Maksyutov, A. Tsuruta, R. Janardanan, A. Ito, M. Sasakawa, T. Machida, I. Morino, Y. Yoshida, J. Kaiser, G. Janssens-Maenhout, E. Dlugokencky, I. Mammarella, J. Valentin Lavric and T. Matsunaga

● Seasonal characteristics of chemical and dynamical transports into the extratropical upper troposphere/lower stratosphere. [Atmos. Chem. Phys., 19, 2019, 7073-7103] Inai, Y., R. Fujita, T. Machida, H. Matsueda, Y. Sawa, K. Tsuboi, K. Katsumata, S. Morimoto, S. Aoki, and T. Nakazawa

● The Global Methane Budget 2000–2017. [Earth Syst. Sci. Data Discuss.] Saunois, M., Stavert, A. R., Poulter, B., Bousquet, P., Canadell, J. G., Jackson, R. B., Raymond, P. A., Dlugokencky, E. J., Houweling, S., Patra, P. K., Ciais, P., Arora, V. K., Bastviken, D., Bergamaschi, P., Blake, D. R., Brailsford, G., Bruhwiler, L., Carlson, K. M., Carrol, M., Castaldi, S., Chandra, N., Crevoisier, C., Crill, P. M., Covey, K., Curry, C. L., Etiope, G., Frankenberg, C., Gedney, N., Hegglin, M. I., Höglund-Isaksson, L., Hugelius, G., Ishizawa, M., Ito, A., Janssens-Maenhout, G., Jensen, K. M., Joos, F., Kleinen, T., Krummel, P. B., Langenfelds, R. L., Laruelle, G. G., Liu, L., Machida, T., Maksyutov, S., McDonald, K. C., McNorton, J., Miller, P. A., Melton, J. R., Morino, I., Müller, J., Murgia-Flores, F., Naik, V., Niwa, Y., Noce, S., O'Doherty, S., Parker, R. J., Peng, C., Peng, S., Peters, G. P., Prigent, C., Prinn, R., Ramonet, M., Regnier, P., Riley, W. J., Rosentreter, J. A., Segers, A., Simpson, I. J., Shi, H., Smith, S. J., Steele, L. P., Thornton, B. F., Tian, H., Tohjima, Y., Tubiello, F. N., Tsuruta, A., Viovy, N., Voulgarakis, A., Weber, T. S., van Weele, M., van der Werf, G. R., Weiss, R. F., Worthy, D., Wunch, D., Yin, Y., Yoshida, Y., Zhang, W., Zhang, Z., Zhao, Y., Zheng, B., Zhu, Q., Zhu, Q., and Zhuang, Q.

【著書】

●南極オゾンホール. (『南極・北極から学ぶ地球環境変動』) [公益財団法人・日本極地研究振興会, 2019, 9-10] 中島英彰 山内恭ら共著

環境研究推進センター

【論文】

● Mechanisms and possible applications of the Al-H₂O reaction under extreme pH and low hydrothermal temperatures.. [International Journal of Hydrogen Energy, 44(57), 2019, 29903-29921] Alviani, V.N., Setiani, P., Uno, M., Oba, M., Hirano, N., Watanabe, N., Tsuchiya, N. and Saishu, H.

● Utilization of Geothermal Hot Spring Water for Hydrogen Production by Al-H²O Hydrothermal Reaction. [Journal of the Geothermal Research Society of Japan, 41(3), 2019, 101-107] Alviani, V.N., Kosaka, T., Uno, M., Oba, M., Hirano, N., Watanabe, N., Tsuchiya, N. and Saishu, H.