

B. 研究活動

1. 研究論文

物質化学科

水野正浩, 田上壮佑, 飯田 葵, 豊田敦至, 細井 淳, 天野良彦

酒造好適米「山恵錦」の澱粉及び胚乳貯蔵蛋白質の特性. *応用糖質科学*, 11, 4, 188-194, 2021.

Susumu Arai, Taishi Kikuhara, Masahiro Shimizu, Masaomi Horita

Superior electrical contact characteristics of Ag/CNT composite films formed in a cyanide-free plating bath and tested against corrosion by H₂S gas. *Mater. Lett.*, 303, 130504, 2021.

DOI:10.1016/j.matlet.2021.130504

Susumu Arai, Ryosuke Iwashita, Masahiro Shimizu, Junki Inoue, Masaomi Horita, Takashi Nagaoka, Masami Itabashi

Fabrication of Roughened Electrodeposited Copper Coating on Steel for Dissimilar Joining of Steel and Thermoplastic Resin. *Metals*, 11, 4, 591, 2021.

DOI:10.3390/met11040591

Masahiro Shimizu, Kohei Kimoto, Takuya Kawai, Toshinori Taishi, Susumu Arai

Dopant Effect on Lithiation/Delithiation of Highly Crystalline Silicon Synthesized Using the Czochralski Process. *ACS Appl. Energy Mater.*, 4, 8, 7922-7929, 2021.

DOI:10.1021/acsaem.1c01192

Masahiro Shimizu, Atsuhito Nakahigashi, Susumu Arai

Intercalation/deintercalation of solvated Mg²⁺ into/from graphite interlayers. *Phys. Chem. Chem. Phys.*, 23, 31, 16981-16988, 2021.

DOI:10.1039/d1cp02895b

Yuito Kamijyou, Radovan Kukobat, Toshio Sakai, Katsumi Kaneko

Nanopore structure analysis of single wall carbon nanotube xerogels and cryogels. *Adsorption*, 27, 673-681, 2021.

DOI:10.1007/s10450-021-00315-x

Kazuo Takei, Nozomi Takahashi, Toshio Sakai

Potential of high-powered bath-type ultrasonicator for manufacturing of emulsifier-free emulsions. *J. Jpn. Soc. Colour Mater.*, 94, 9, 245-251, 2021.

Elda Zoraida Piña-Salazar, Kento Sagisaka, Yoshiyuki Hattori, Toshio Sakai, Eiji Ōsawa, Katsumi Kaneko

Pore Mouth Structure of Highly Agglomerated Detonation Nanodiamonds. *Nanomaterials*, 11, 11, 2772, 2021.

DOI:10.3390/nano11112772

Kazuo Takei, Masaru Watanabe, Keita Kawasaki, Toshio Sakai

Colloidal stability of emulsifier-free triolein-in-water emulsions: Effects of temperature. *J. Oleo Sci.*, 71, 1, 75-81, 2022.

Yuji Takita, Tomohiko Yamakami, Tomohiro Yamaguchi, Seiichi Taruta

Chemical strengthening of zirconia/swelling mica composites by ion-exchange in molten salts. *J. Asian Ceram. Soc.*, 9, 2, 598-608, 2021.

DOI:10.1080/21870764.2021.1905253

Youn Charles-Blin, Hitomi Todoki, Nobuyuki Zettsu, Katsuya Teshima

Molecular gate effects in fluoroalkylsilane self-assembled monolayer grafted on LiNi_{0.5}Mn_{1.5}O₄ cathodes: To-

ward efficient ion-exchanging reaction. *Materials Advances*, 2, 16, 5406–5414, 2021.

DOI:10.1039/d1ma00426c

Mirabbos Hojamberdiev, Manuel Juan Mora-Hernandez, Ronald Vargas, Akira Yamakata, Kunio Yubuta, Maria Eva Heppke, Leticia Torres-Martínez, Katsuya Teshima, Martin Lerch

Time-retrenched synthesis of BaTaO₂N by localizing an NH₃ delivery system for visible-light-driven photoelectrochemical water oxidation at neutral pH: Solid-state reaction or flux method?. *ACS Applied Energy Materials*, 4, 9, 9315–9327, 2021.

DOI:10.1021/acsaem.1c01539

Mirabbos Hojamberdiev, Ronald Vargas, Zuhra Kadirova, Sena Hadi, Aleksei Krasnov, Katsuya Teshima, Martin Lerch

Unfolding the role of b-site-selective doping of aliovalent cations on enhancing sacrificial visible-light-induced photocatalytic H₂ and O₂ evolution over BaTaO₂N. *ACS Applied Energy Materials*, 4, 9315–9327, 2021.

DOI:10.1021/acscatal.1c04547

Mongkol Tipplook, Tomohito Sudare, Hiromasa Shiiba, Arisa Seki, Katsuya Teshima

Single-step topochemical synthesis of NiFe layered double hydroxides for superior anion removal from aquatic systems. *ACS Applied Materials & Interfaces*, 13, 43, 51186–51197, 2021.

DOI:10.1021/acsaem.1c13706

Hiromasa Nishikiori, Yosuke Kageshima, Nasrin Hooshmand, Mostafa A. El-Sayed, Katsuya Teshima

Observation of excited state proton transfer between the titania surface and dye molecule by time-resolved fluorescence spectroscopy. *J. Phys. Chem. C*, 125, 40, 21958–21963, 2021.

DOI:10.1021/acs.jpcc.1c05843

Hiromasa Nishikiori, Hiroyoshi Ebara, Hitoshi Takayama, Shinnosuke Adachi, Naoya Kobayashi, Fumitaka Hayashi, Katsuya Teshima

Formation of alkali metal titanate nanocrystals using titanium alkoxide. *Res. Chem. Intermed.*, 47, 12, 5135–5153, 2021.

DOI:10.1007/s11164-021-04581-w

Tomohiko Okada, Kana Izumi, Shogo Kawaguchi, Chikako Moriyoshi, Takuya Fujimura, Ryo Sasai, Makoto Ogawa

Important roles of water clusters confined in a nanospace as revealed by a synchrotron X-ray diffraction study. *Langmuir*, 37, 35, 10469–10480, 2021.

DOI:10.1021/acs.langmuir.1c01322

Takahiro Nemoto, Toshio Sakai, Tomohiko Okada

Unimodal sized silica nanocapsules produced through water-in-oil emulsions prepared by sequential irradiation of kilo- and submega-hertz ultrasounds. *RSC Advances*, 11, 37, 22921–22928, 2021.

DOI:10.1039/d1ra03384k

Yasunori Toda, Toshinobu Korenaga, Ren Obayasi, Jun Kikuchi, Masahiro Terada

Dynamic parallel kinetic resolution of a-ferrocenyl cation initiated by chiral Brønsted acid catalyst. *Chem. Sci.*, 12, 10306–10312, 2021.

DOI:10.1039/d1sc02122b

Yasunori Toda, Minoru Shishido, Tatsuya Aoki, Kimiya Sukegawa, Hiroyuki Suga

Switchable synthesis of cyclic carbamates by carbon dioxide fixation at atmospheric pressure. *Chem. Commun.*, 57, 6672–6675, 2021.

DOI:10.1039/d1cc02493k

Yasunori Toda, Takayuki Yoshida, Kaoru Arisue, Kazuaki Fukushima, Hiroyoshi Esaki, Ayaka Kikuchi,

Hiroyuki Suga

Enantioselective Protonation of Cyclic Carbonyl Ylides by Chiral Lewis Acid Assisted Alcohols. *Chem. Eur. J.*, 27, 41, 10578-10582, 2021.

DOI:10.1002/chem.202101491

Fumiaki Takagi, Suzuna Taguchi, Yosuke Kageshima, Katsuya Teshima, Kazunari Domen, Hiromasa Nishikiori
Accelerated photoelectrochemical oxygen evolution over a BaTaO₂N photoanode modified with cobalt-phosphate-loaded TiO₂ nanoparticles, *Appl. Phys. Lett.*, 119, 12, 123902, 2021.

DOI:10.1063/5.0061729

Yosuke Kageshima, Haruka Momose, Fumiaki Takagi, Sora Fujisawa, Tetsuya Yamada, Katsuya Teshima, Kazunari Domen, Hiromasa Nishikiori

A semitransparent particulate photoanode composed of SrTiO₃ powder anchored on titania nanosheets, *Sustainable Energy Fuels*, 5, 19, 4850-4857, 2021.

DOI:10.1039/d1se00914a

Yosuke Kageshima, Yurina Ojima, Hiromasa Wada, Sangho Koh, Masahiro Mizuno, Katsuya Teshima, Hiromasa Nishikiori

Insight into the Electrocatalytic Oxidation of Cellulose in Solution toward Applications in Direct Cellulose Fuel Cells, *J. Phys. Chem. C*, 125, 27, 14576-14582, 2021.

DOI:10.1021/acs.jpcc.1c04357

Yosuke Kageshima, Yui Gomyo, Hikaru Matsuoka, Hiroto Inuzuka, Hajime Suzuki, Ryu Abe, Katsuya Teshima, Kazunari Domen, Hiromasa Nishikiori

Z-Scheme Overall Water Splitting Using Zn_xCd_{1-x}Se Particles Coated with Metal Cyanoferrates as Hydrogen Evolution Photocatalysts, *ACS Catal.*, 11, 13, 8004-8014, 2021.

DOI:10.1021/acscatal.1c01187

Yosuke Kageshima, Sota Shiga, Tatsuki Ode, Fumiaki Takagi, Hiromasa Shiiba, Myo Than Htay,

Yoshio Hashimoto, Katsuya Teshima, Kazunari Domen, Hiromasa Nishikiori

Photocatalytic and Photoelectrochemical Hydrogen Evolution from Water over Cu₂Sn_xGe_{1-x}S₃ Particles. *J. Am. Chem. Soc.*, 143, 15, 5698-5708, 2021.

DOI:10.1021/jacs.0c12140

Kazuyuki Shishino, Tetsuya Yamada, Kazunori Fujisawa, Masashi Motoi, Tatsuo Hatakeyama, Katsuya Teshima
LiNi_{0.5}Co_{0.2}Mn_{0.3}O₂ crystals in molten Li₃BO₃ flux and their role in electrode density and dispersion design. *ACS Appl. Energy Mater.*, 5, 2747-2757, 2022.

Tetsuya Yamada, Takanori Watanabe, Kazuaki Hatsusaka, Jianjun Yuan, Michihisa Koyama, Katsuya Teshima
Importance of raw material features for prediction of flux growth of Al₂O₃ crystals using machine learning. *Cryst. Eng. Comm.*, under revision. *CRYSTENGCOMM*, 24, 17, 3179-3188, 2022.

DOI:10.1039/d2ce00010e

電子情報システム工学科

María Guadalupe Martínez-Peñaloza, Efren Mezura-Montes, Alicia Morales-Reyes, Hernán Aguirre

Distance-based Immune Generalised Differential Evolution Algorithm for Dynamic Multi-Objective Optimisation. *Int. Journal Bio-Inspired Computation*, 18, 2, 69-81, 2021.

Bojun Chen, Fumiya Aikawa, Eiji Itoh

Improvement of device performance of Ph-BTBT-10 field-effect transistors fabricated on a HfO₂/alicyclic polyimide double-layered gate insulator. *Japanese Journal of Applied Physics*, 61, SB, B, 1008, 2022. (6 pag-

es)

DOI:10.35848/1347-4065/ac2f60

Rin Karashima, Kozo Okano, Shinpei Ogata, Satoshi Harauchi, Toshifusa Sekizawa

Proposal and evaluation for a method to verify equivalence of specifications of C and Java functions with recursive data structures by SAW: case studies of linear structures and binary trees. *International Journal of Informatics Society*, 12, 3, 143-156, 2021.

Chellet Marwan Bernard Hassan, Shinpei Ogata, Kozo Okano

Executable counterexample for Java model checker. *International Journal of Informatics Society*, 13, 3, 2022.

Terasawa Koji, Gede Adiatmika I Putu, Nyoman Adiputra I, Maruo Suchinda Jarupat, Kalampakorn Surintorn,

Watanabe Toshiaki, Sasamori Fumihito, Kobayashi Kazuki, Akasaki Hisaki, Okuhara Masao, Uchiyama, Ryoji,

Ashida Kazuki, Tabuchi Hisaaki, Kayama Mizue, Futagami Takao, Nagai Takashi

Implementation of a health education program in Asia, comparing Thailand, Indonesia, and Japan. *Technology and Health Care*, 1-11, 2022.

DOI: 10.3233/THC-202583

齊藤保典, 小林一樹

ライダー法による衣服類脱着等の日常動作における付着ダスト放出状況の実時間空間分布観察. *日本家政学会誌*, 72, 11, 730-738, 2021.

平岡 透, 上原三知, 小林一樹

新型コロナウイルスによる外出自粛期のストレス増減量の推定. *産業応用工学会誌*, 9, 2, 53-58, 2021.

源野広和, 小林一樹

畳み込みニューラルネットワークを用いて果実画像の生育度分類を行う場合の果実拡大率の影響. *農業情報研究*, 30, 2, 86-95, 2021.

Misato Uehara, Makoto Fujii, Kazuki Kobayashi, Yasuto Hayashi, Yuki Arai

Common factors of stress change under the first covid-19 outbreak as observed in four global cities. *Sustainability*, 13, 11, 5996, 2021.

DOI:10.3390/su13115996

嶋田大樹, 笹森文仁, 田久 修, 半田志郎

OFDM方式における位相オフセットを活用した繰り返し送信方法. *電子情報通信学会論文誌B*, J104-B, 7, 653-656, 2021.

Sakda Somkun, Toshiro Sato, Viboon Chunkag, Akekachai Pannawan, Pornnipa Nunocha, Tawat Suriwong

Performance Comparison of Ferrite and Nanocrystalline Cores for Medium-Frequency Transformer of Dual Active Bridge DC-DC Converter. *Energies*, 14, 9, 2407, 2021.

DOI:10.3390/en14092407

堀 健太郎, 望月大地, 菊池良巳, 曾根原 誠, 脇若弘之, 佐藤敏郎

Cu/SPCC複合材ディスクを用いた三相交流励磁渦電流ブレーキの制動トルク. *日本AEM学会誌*, 29, 2, 191-196, 2021.

志賀大樹, 角 太一郎, 菊池良巳, 脇若弘之, 曾根原 誠, 佐藤敏郎

円筒型磁気粘性流体ブレーキの基礎検討. *日本AEM学会誌*, 29, 2, 303-308, 2021.

E. Ohba, T. Kobayashi, T. Taishi, K. Hoshikawa

Growth of (100), (010) and (001) β -Ga₂O₃ single crystals by vertical Bridgman method. *J. Cryst. Growth*, 556, 125990, 2021.

Y. Kagami, S. Yamamoto, Y. Yokobayashi, R. Uchida, K. Suzuki, S. Taruta, T. Taishi

Polycrystalline SiC coating on large-sized SiC ceramics using Si vapor. *Journal of Ceramics Society of Japan*,

129, 1-7, 2021.

Masahiro Shimizu, Kohei Kimoto, Takuya Kawai, Toshinori Taishi, Susumu Arai

Dopant Effect on Lithiation/Delithiation of Highly Crystalline Silicon Synthesized Using the Czochralski Process. *ACS Appl. Energy Mater.*, 4, 8, 7922-7929, 2021.

DOI:10.1021/acsaem.1c01192

Hugo Monzon Maldonado, Hernan Aguirre, Sebastien Verel, Arnaud Liefoghe, Bilel Derbel, Kiyoshi Tanaka

Estimating Hypervolume using Population Features from Dynamic Compartmental Models. *進化計算学会論文誌*, 12, 1, 12-25, 2021.

Hugo Monzón, Hernán Aguirre, Sébastien Verel, Arnaud Liefoghe, Bilel Derbel, Kiyoshi Tanaka

Understanding Population Dynamics in Multi- and Many-objective Evolutionary Algorithms for High-Resolution Approximations. *Advances in Operations Research*, 2021, 16, 2021.

Luis PERALTA, Munetoshi IWAKIRI, Kiyoshi TANAKA

A Registration Method on Piece-wise Voting for Low Overlapping 3D Point Clouds. *IIEEJ Transactions on Image Electronics and Visual Computing*, 9, 2, 58-68, 2021.

Sho Yokoyama, Yoshiki Tanaka, Takashi Kojima, Rie Horai, Yukihito Kato, Hideki Nakamura, Hiroyuki Sato, Mari Mitamura, Kiyoshi Tanaka, Kazuo Ichikawa

Age-related changes of color visual acuity in normal eyes. *PLOS ONE*, 16, 11, 2021.

Ryoma Ito, KokSheik Wong, Simying Ong, Kiyoshi Tanaka

Encryption and Data Insertion Technique Using Region Division and Histogram Manipulation. *Malaysian Journal of Computer Science*, 34, 4, 341-354, 2021.

Yoichi Matsubara, Keiichiro Shirai, Yuya Ito, Kiyoshi Tanaka

Pixel-wise parallel calculation for depth from focus with adaptive focus measure. *Multidimensional Systems and Signal Processing*, 33, 1, 121-142, 2021.

DOI:10.1007/s11045-021-00794-9

Akeno Tamaoki, Takashi Kojima, Asato Hasegawa, Mana Yamamoto, Tatsushi Kaga, Kiyoshi Tanaka, Kazuo Ichikawa

Evaluation of Axial Length Measurement Using Enhanced Retina Visualization Mode of the Swept-Source Optical Coherence Tomography Biometer in Dense Cataract. *Ophthalmic Research*, 64, 4, 595-603, 2021.

植西一馬, サンドバル・ハイメ, 岩切宗利, 田中 清

平面尤度を用いたVKOPの再現性評価. *画像電子学会誌*, 50, 3, 351-361, 2021.

齊藤陽平, 植西一馬, 岩切宗利, アギレエルナン, 田中 清

キーポイントパッチ位置を適応的に選択する3次元点群レジストレーション手法. *画像電子学会誌*, 50, 3, 362-369, 2021.

Ashenafi Abadi, Myo Than Htay, Yoshio Hashimoto, Kentaro Ito, Noritaka Momose

Annealing effect of absorber layer on SnS/CdS heterojunction band alignments. *JJAP*, 61, SB1042, 2022.

Worawut Muangrat, Michiko Obata, Myo Than Htay, Masatsugu Fujishige, Paweena Dulyaseree,

Winadda Wongwiriyan, Yoshio Hashimoto

Nitrogen-doped graphene nanosheets-double-walled carbon nanotube hybrid nanostructures for high-performance supercapacitors. *FlatChem*, 29, 100292, 2021.

DOI:10.1016/j.flatc.2021.100292

Yosuke Kageshima, Sota Shiga, Tatsuki Ode, Fumiaki Takagi, Hiromasa Shiiba, Myo Than Htay,

Yoshio Hashimoto, Katsuya Teshima, Kazunari Domen, Hiromasa Nishikiori

Photocatalytic and Photoelectrochemical Hydrogen Evolution from Water over $\text{Cu}_2\text{Sn}_x\text{Ge}_{1-x}\text{S}_3$ Particles. *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*, 143, 15, 5698-5708, 2021.

DOI:10.1021/jacs.0c12140

宇野貴士, 宮尾秀俊, 丸山 稔

深層学習により構築されたEnd to Endマルウェア検出器に対する汎用敵対的摂動生成手法. 情報処理学会論文誌, 62, 6, 1368-1372, 2021.

田中大登, 志村和夫, 佐藤光秀, 水野 勉

超高速モータの駆動周波数帯域に求められる磁性コンポジット材の検討. 日本AEM学会誌, 30, 1, 1-7, 2022.

Mitsuhide Sato, Takumi Maezawa, Masashi Ueda, Yinggang Bu, Tsutomu Mizuno

Reduced Heat in Radiated Electromagnetic-Field Suppression Case for Wireless Power Transmission using a Magnetic Composite Sheet. IEEE Transactions on Electromagnetic Compatibility, 64, 1, 1-9, 2022.

DOI:10.1109/TEMC.2021.3135937

Manabu Horiuchi, Ryoken Masuda, Yinggang Bu, Masami Nirei, Mitsuhide Sato, Tsutomu Mizuno

Effect of Magnetic Wedge Characteristics on Torque Ripple and Loss in Interior Permanent Magnet Synchronous Motor. IEEJ Journal of Industry Applications, 11, 1, 49-58, 2022.

DOI:10.1541/ieejia.21002574

Kazuhiro Shimura, Kazuma Kubota, Mitsuhide Sato, Tsutomu Mizuno, Norio Koike, Masayuki Sakurada, Takao Nebashi

Alternating-Current Copper Loss Reduction in a High-Frequency Transformer for Railways Using a Magnetic Tape. IEEE Transactions on Magnetics, 57, 11, 8402207, 1-7, 2021.

DOI:10.1109/TMAG.2021.3113498

Kazuhiro Shimura, Shigeki Kobayashi, Mitsuhide Sato, Tsutomu Mizuno

Improving Efficiency of Beyond-10-MHz LLC Resonant DC-DC Converters Using Spiral Transformers with Magnetic Flux Path Control Technology. IEEE Transactions on Magnetics, 57, 11, 8402109, 1-9, 2021.

DOI:10.1109/TMAG.2021.3113998

Mitsuhide Sato, Shoma Irie, Jianping Zheng, Tsutomu Mizuno, Fumiya Nishimura, Kaname Naganuma

Generator design considering mover action to improve energy conversion efficiency in a free-piston engine generator. Electronics, 10, 17, 2142, 1-14, 2021.

DOI:10.3390/electronics10172142

Takumi Maezawa, Hao Zhou, Mitsuhide Sato, Yinggang Bu, Tsutomu Mizuno

Low Loss on a Litz Aluminum Wire Coil Using Magnetic Tape for Automotive Wireless Power Transmission. IEEE transactions on Magnetics, 57, 9, 8700307, 1-7, 2021.

DOI:10.1109/TMAG.2021.3097880

Mitsuhide Sato, Yusuke Hattori, Masashi Ueda, Yinggang Bu, Tsutomu Mizuno

Improved Performance of a Flat-Wire Coil with Magnetic Composite Material for Wireless Power Transfer. IEEE Magnetics Letters, 12, 8101105, 1-5, 2021.

近松具樹, 大森湧也, 佐藤光秀, 水野 勉, 金子 亮, 關 淳史, 中山雄一郎

電磁誘導式車両センサにおける出力特性を活かした検出性能向上. 日本AEM学会誌, 29, 2, 427-433, 2021.

佐藤光秀, 鈴木 樹, 増田良健, 堀内 学, 高沢溪吾, 卜 穎剛, 水野 勉, 楡井雅巳

空間高調波低減のための磁性コンポジットリングを利用した埋込巻線形モータ. 日本AEM学会誌, 29, 2, 275-280, 2021.

志村和夫, 久保田和馬, 田中大登, 佐藤光秀, 水野 勉

鉄道用高周波トランスの軽量化と銅損低減のための磁性テープ巻平角アルミニウム巻線の検討. 日本AEM学会誌, 29, 2, 383-388, 2021.

増田良健, 湯澤凌芽, 佐藤光秀, 水野 勉, 田代晋久, 大宮直木

カプセル内視鏡用位置検出器のアンテナ指向性を利用した位置検出精度の向上. 日本AEM学会誌, 29, 2, 212-

218, 2021.

近松具樹, 佐野太規, 佐藤光秀, 水野 勉, 榎木茂美, 旭 尊史, 松浦史明

高Q値化による渦電流型レール変位センサの高リフトオフ化の検討. 日本AEM学会誌, 29, 1, 149-154, 2021.

Chu Ye, Lin-Lin Li, Yun Shu, Qian-Rui Li, Jing Xia, Zhi-Peng Hou, Yan Zhou, Xiao-Xi Liu, Yun-You Yang, Guo-Ping Zhao

Generation and manipulation of skyrmions and other topological spin structures with rare metals. *Rare Met.*, 2022.

DOI:10.1007/s12598-021-01908-9

Laichuan Shen, Jing Xia, Zehan Chen, Xiaoguang Li, Xichao Zhang, Oleg A Tretiakov, Qiming Shao, Guoping Zhao, Xiaoxi Liu, Motohiko Ezawa, Yan Zhou

Nonreciprocal dynamics of ferrimagnetic bimerons. *Physical Review B*, 105, 1, 014422, 2022.

DOI:10.1103/PhysRevB.105.014422

Zhipeng Hou, Yadong Wang, Xiaoming Lan, Sai Li, Xuejin Wan, Fei Meng, Yangfan Hu, Zhen Fan, Chun Feng, Minghui Qin, Min Zeng, Xichao Zhang, Xiaoxi Liu, Xuewen Fu, Guanghua Yu, Guofu Zhou, Yan Zhou, Weisheng Zhao, Xingsen Gao, Jun-Ming Liu

Controlled switching of the number of skyrmions in a magnetic nanodot by electric fields. *Advanced materials* (Deerfield Beach, Fla.), e2107908, 2021.

DOI:10.1002/adma.202107908

Xichao Zhang, Jing Xia, Oleg A Tretiakov, Hung T Diep, Guoping Zhao, Jinbo Yang, Yan Zhou, Motohiko Ezawa, Xiaoxi Liu

Dynamic transformation between a skyrmion string and a bimeron string in a layered frustrated system. *Physical Review B*, 104, 22, L220406, 2021.

DOI:10.1103/PhysRevB.104.L220406

Xichao Zhang, Jing Xia, Keiichiro Shirai, Hiroshi Fujiwara, Oleg A Tretiakov, Motohiko Ezawa, Yan Zhou, Xiaoxi Liu

Configurable pixelated skyrmions on nanoscale magnetic grids. *Communications Physics*, 4, 1, 1-9, 2021.

DOI:10.1038/s42005-021-00761-7

Xue Liang, Xichao Zhang, Laichuan Shen, Jing Xia, Motohiko Ezawa, Xiaoxi Liu, Yan Zhou

Dynamics of ferrimagnetic skyrmionium driven by spin-orbit torque. *Physical Review B*, 104, 17, 174421, 2021.

DOI:10.1103/PhysRevB.104.174421

Xue Liang, Jing Xia, Xichao Zhang, Motohiko Ezawa, Oleg A Tretiakov, Xiaoxi Liu, Lei Qiu, Guoping Zhao, Yan Zhou

Antiferromagnetic skyrmion-based logic gates controlled by electric currents and fields. *Applied Physics Letters*, 119, 6, 062403, 2021.

DOI:10.1063/5.0056259

Kai Yu Mak, Jing Xia, Xichao Zhang, Motohiko Ezawa, Xiaoxi Liu, Yan Zhou

Transcription and logic operations of magnetic skyrmions in bilayer cross structures. *Journal of Physics: Condensed Matter*, 33, 40, 404001, 2021.

DOI:10.1088/1361-648X/ac117e

Mouad Fattouhi, Kai Yu Mak, Yan Zhou, Xichao Zhang, Xiaoxi Liu, Mohamed El Hafidi

Logic gates based on synthetic antiferromagnetic bilayer skyrmions. *Physical Review Applied*, 16, 1, 014040, 2021.

DOI:10.1103/PhysRevApplied.16.014040

- Jing Xia, Xichao Zhang, Kai-Yu Mak, Motohiko Ezawa, Oleg A Tretiakov, Yan Zhou, Guoping Zhao, Xiaoxi Liu
Current-induced dynamics of skyrmion tubes in synthetic antiferromagnetic multilayers. *Physical Review B*, 103, 17, 174408, 2021.
DOI:10.1103/PhysRevB.103.174408
- Kentaro Ohara, Xichao Zhang, Yinling Chen, Zonhan Wei, Yungui Ma, Jing Xia, Yan Zhou, Xiaoxi Liu
Confinement and protection of skyrmions by patterns of modified magnetic properties. *Nano Letters.*, 21, 10, 4320-4326, 2021.
DOI:10.1021/acs.nanolett.1c00865
- Junjie Zhan, Kai Li, Yi Zhou, Xiaoxi Liu, Yungui Ma
Ultrathin Conformal Magnetic Invisible Cloak for Irregular Objects. *ACS Applied Materials & Interfaces*, 13, 14, 17104-17109, 2021.
DOI:10.1021/acsami.1c02117
- Tae-Eon Park, Licong Peng, Jinghua Liang, Ali Hallal, Fehmi Sami Yasin, Xichao Zhang, Kyung Mee Song, Sung Jong Kim, Kwangsu Kim, Markus Weigand, Gisela Schütz, Simone Finizio, Jörg Raabe, Karin Garcia, Jing Xia, Yan Zhou, Motohiko Ezawa, Xiaoxi Liu, Joonyeon Chang, Hyun Cheol Koo, Young Duck Kim, Mairbek Chshiev, Albert Fert, Hongxin Yang, Xiuzhen Yu, Seonghoon Woo
Néel-type skyrmions and their current-induced motion in van der Waals ferromagnet-based heterostructures. *Physical Review B*, 103, 10, 104410, 2021.
- Nobuhiro Shimoi, Kazuhisa Nakasho, Katsumi Wasaki
Low-Cost Sensor System with Life Signals for Bed Monitoring. *International Journal of Science and Engineering Investigations (IJSEI)*, 10, 116, 45-50, 2021.
- Kazuhisa Nakasho, Hiroyuki Okazaki, Yasunari Shidama
Real Vector Space and Related Notions. *FORMALIZED MATHEMATICS*, 29, 3, 117-127, 2021.
DOI:10.2478/forma-2021-0012
- Kazuhisa Nakasho, Hiroyuki Okazaki
Finite Dimensional Real Normed Spaces are Proper Metric Spaces. *FORMALIZED MATHEMATICS*, 29, 4, 177-186, 2021.
DOI:10.2478/forma-2021-0017
- Hiroyuki Okazaki, Kazuhisa Nakasho
The 3-Fold Product Space of Real Normed Spaces and its Properties. *FORMALIZED MATHEMATICS*, 29, 4, 245-253, 2021.
DOI:10.2478/forma-2021-0022
- 大宮拓馬, 小形真平, 岡野浩三
可読性の高いクラス図レイアウトを作成するための美的基準の調査. *コンピュータソフトウェア*, 38, 4, 33-39, 2021.
- Kenta Kanakogi, Hironori Washizaki, Yoshiaki Fukazawa, Shinpei Ogata, Takao Okubo, Takehisa Kato, Hideyuki Kanuka, Atsuo Hazeyama, Nobukazu Yoshioka
Tracing cve vulnerability information to capec attack patterns using natural language processing techniques. *Information*, 12, 8, 298, 2021.
DOI:10.3390/info12080298
- Yuta Kaga, Koh Johguchi
A 180 nm CMOS smart ultrasonic water flow meter circuit for IoT smart society. *Japanese Journal of Applied Physics (JJAP)*, 60, SBBL05, 2021.
- Keiichiro Shirai, Tatsuya Baba, Shunsuke Ono, Masahiro Okuda, Yusuke Tatesumi, Paul Perrotin

- Guided facial skin color correction. *MDPI Signals*, 2, 3, 540–558, 2021.
- Keiichiro Shirai, Yuya Ito, Hidetoshi Miyao, Minoru Maruyama
Efficient pixel-wise SVD required for image processing using the color line feature. *IEEE Access*, 9, 79449–79460, 2021.
DOI:10.1007/s11045-021-00794-9
- Riku Yamabe, Mikihiko Nishiara, Osamu Takyu, Koichi Adachi
Achievable Rate Enhancement Based on Multi-Packet Indexing in Packet-Level Index Modulation. *IEEE Access*, 9, 154938–154946, 2021.
- Aoto Kaburaki, Koichi Adachi, Osamu Takyu, Mai Ohta, Takeo Fujii
Autonomous Decentralized Traffic Control Using Q-learning in LPWAN. *IEEE Access*, 9, 93651–93661, 2021.
- Arata Takahashi, Osamu Takyu, Hiroshi Fujiwara, Takeo Fujii, Tomoaki Ohtsuki
Overloaded Wireless MIMO Switching for Information Exchanging through Untrusted Relay in Secure Wireless Communication. *IEICE Transaction on Communications*, E104-B, 10, 1249–1259, 2021.
- Kenichiro Yamamoto, Osamu Takyu, Keiichiro Shirai, Yasushi Fuwa
Spatial Compression of Sensing Information for Exploiting the Vacant Frequency Resource using Radio Sensors. *IEICE Transaction on Communications*, E104-B, 10, 1217–1226, 2021.
- Norhisam Misron, Nur Amira Ibrahim, Nisa Syakirah Kamal Azhar, Luqman Mohd Saini, Aravind CV, Kunihisa Tashiro, Hirokazu Nagata
Implementation of Four Terminal Fruit Battery with Charge Switching. *IEEE Access*, 9, 128157–128165, 2021.
DOI : 10.1109/ACCESS.2021.3112708
- 内山純一郎, 後藤拓哉, 田代晋久, 脇若弘之, 直江正幸
FeCoV磁性線を用いた磁気式トルクセンサの検討. *日本AEM学会誌*, 29, 2, 495–500, 2021.
- 後藤拓哉, 内山純一郎, 田代晋久, 脇若弘之, 直江正幸
FeCoV磁性線を用いた磁気双安定素子による環境磁界発電装置の試作. *日本AEM学会誌*, 29, 3, 595–600, 2021.
- 小澤悠平, 田代晋久, 脇若弘之, 水野 勉, 大宮直木
磁気誘導磁石保管用磁気シールド設計のための簡易解析モデルの検討. *電気学会論文誌A*, 141, 5, 333–338, 2021.
- 松橋華世, 小澤悠平, 田代晋久, 脇若弘之, 水野 勉, 大宮直木
カプセル内視鏡用磁気誘導平面配列磁石の設計. *日本AEM学会誌*, 29, 1, 13–18, 2021.
- 木村藤一郎, 大川慎之介, 田代晋久, 脇若弘之, 中村善宏, 町田和俊
金属のめっき状態の差異判別. *日本AEM学会誌*, 29, 1, 1–6, 2021.
- 大川慎之介, 田代晋久, 脇若弘之, 中村善宏, 町田和俊
ステップ応答法による金属判別のための機械学習結果の評価. *電気学会論文誌A*, 141, 4, 233–238, 2021.
- Mikihiko Nishiara
Channel Coding with Cost Paid on Delivery. *IEICE Trans. Fundamentals*, E105-A, 3, 345–352, 2022.
DOI:10.1587/transfun.2021TAP0002
- Tao Xiao, Dong Wang, Shane McIntosh, Hideaki Hata, Raula Gaikovina Kula, Takashi Ishio, Kenichi Matsumoto
Characterizing and Mitigating Self-Admitted Technical Debt in Build Systems. *IEEE Transactions on Software Engineering*. (Early Access, 16pages), 2021.
DOI:10.1109/TSE.2021.3115772
- Raula Gaikovina Kula, Christoph Treude, Hideaki Hata, Sebastian Baltes, Igor Steinmacher, Marco Aurelio Gerosa, Winifred Kula Amini

Challenges for Inclusion in Software Engineering: The Case of the Emerging Papua New Guinean Society. *IEEE Software*, 39, 3, 67–76, 2022.

DOI:10.1109/MS.2021.3098116

Supatsara Wattanakriengkrai, Patanamon Thongtanunam, Chakkrit Tantithamthavorn, Hideaki Hata, Kenichi Matsumoto

Predicting Defective Lines Using a Model-Agnostic Technique. *IEEE Transactions on Software Engineering*, 48, 5, 1480–1496, 2022.

DOI:10.1109/TSE.2020.3023177

Supatsara Wattanakriengkrai, Bodin Chinthanet, Hideaki Hata, Raula Gaikovina Kula, Christoph Treude, Jin Guo, Kenichi Matsumoto

GitHub Repositories with Links to Academic Papers: Open Access, Traceability, and Evolution. *Journal of Systems and Software*, 183, 111117, 2022.

DOI:10.1016/j.jss.2021.111117

Hideaki Hata, Nicole Novielli, Sebastian Baltes, Raula Gaikovina Kula, Christoph Treude

GitHub Discussions: An Exploratory Study of Early Adoption. *Empirical Software Engineering*, 27, 1, 3, 2022.

DOI:10.1007/s10664-021-10058-6

Yusuf Sulistyo Nugroho, Syful Islam, Keitaro Nakasai, Ifraz Rehman, Hideaki Hata, Raula Gaikovina Kula, Meiyappan Nagappan, Kenichi Matsumoto

How are Project-Specific Forums Utilized? A Study of Participation, Content, and Sentiment in the Eclipse Ecosystem. *Empirical Software Engineering*, 26, 6, 132, 2021.

DOI:10.1007/s10664-021-10032-2

Mingyu Guo, Guanhua Wang, Hideaki Hata, Muhammad Ali Babar

Revenue maximizing markets for zero-day exploits. *Autonomous Agents and Multi-Agent Systems*, 35, 2, 36, 2021.

DOI:10.1007/s10458-021-09522-w

Hiroshi Fujiwara, Yuichi Shirai, Hiroaki Yamamoto

The Huffman Tree Problem with Upper-Bounded Linear Functions. *IEICE Transactions on Information and Systems*, E105-D, 3, 474–480, 2022.

DOI:10.1587/transinf.2021FCP0006

Hiroshi Fujiwara, Ken Endo, Hiroaki Yamamoto

Analysis of Lower Bounds for Online Bin Packing with Two Item Sizes. *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, E104-A, 9, 1127–1133, 2021.

DOI:10.1587/transfun.2020DMP0007

Hiroshi Fujiwara, Ryota Adachi, Hiroaki Yamamoto

Algorithm NextFit for the Bin Packing Problem. *Formalized Mathematics*, 29, 3, 141–151, 2021.

DOI:10.2478/forma-2021-0014

Noriyuki Urakami, Kohei Ogihara, Hatsuki Futamura, Kensuke Takashima, Yoshio Hashimoto

Demonstration of electronic devices in graphitic carbon nitride crystalline film. *AIP Advances* 11, 7, 075204, 2021.

DOI:10.1063/5.0055141

Masaya Fukai, Noriyuki Urakami, Yoshio Hashimoto

Electrical properties in Ta₂NiSe₅ film and van der Waals heterojunction. *Coatings* 11, 12, 1485 2021.

DOI:10.3390/coatings11121485

Akira Jinguji, Shimpei Sato, Hiroki Nakahara

Weight Sparseness for a Feature-Map-Split-CNN Toward Low-Cost Embedded FPGAs. *IEICE TRANSACTIONS on Information and Systems*, E104-D, 12, 2040-2047, 2021.

DOI:10.1587/transinf.2021PAP0011

Hiroyoshi Tanabe, Shimpei Sato, Atsushi Takahashi

Fast EUV lithography simulation using convolutional neural network. *Journal of Micro/Nanopatterning Materials and Metrology (JM3)*, 20, 4, 041202, 1-14, 2021.

DOI:10.1117/1.JMM.20.4.041202

Naoto Soga, Shimpei Sato, Hiroki Nakahara

Energy-Efficient ECG Signals Outlier Detection Hardware Using a Sparse Robust Deep Autoencoder. *IEICE TRANSACTIONS on Information and Systems*, E104-D, 8, 1121-1129, 2021.

DOI:10.1587/transinf.2020LOP0011

Yuta Ukon, Shimpei Sato, Atsushi Takahashi

Design Method of Variable-Latency Circuit with Tunable Approximate Completion-Detection Mechanism. *IEICE TRANSACTIONS on Electronics*, E104-C, 7, 309-318, 2021.

DOI:10.1587/transle.2020CDP0007

R. U. Abbasi, T. Tomida *et al.* (The Telescope Array Collaboration)

The Cosmic-Ray Composition between 2 PeV and 2 EeV Observed with the TALE Detector in Monocular Mode. *ApJ.*, 909, 178, 2021.

R. U. Abbasi, T. Tomida *et al.* (The Telescope Array Collaboration)

Surface detectors of the TAx4 experiment. *NIM Phys. Res., A*, 1019, 165726, 2021.

DOI:10.1016/j.nima.2021.165726

富田孝幸, 中村智行, 上濱孝文, 山崎勝也

テレスコープアレイ実験サイトにおけるバイスタティックライダーによる大気透明度評価. *レーザー研究*, 49, 9, 2021.

Chandrabhan Patel, Biswajit Mandal, Rohit Jadhav, Tapas Ghosh, Mayank Dubey, Apurba Das,

Myo Than Htay, Victor Atuchin, Shaibal Mukherjee

S, N Co-Doped Carbon Dot-Functionalized WO₃ Nanostructures for NO₂ and H₂S Detection. *ACS Applied Nano Materials*, 5, 2, 2492-2500, 2022.

DOI:10.1021/acsanm.1c04174

水環境・土木工学科

Ikram W. M., Sjahrir F., Yaaob N. S., Dzulkafli N. F., Ahmad M. F., Abdullah H., Maniyam M. N., Hashim E. F., Kawasaki N., Komatsu K., Kuwahara V. S.

Assessment of Aqueous Extraction Methods on Extractable Organic Matter and Hydrophobic/Hydrophilic Fractions of Virgin Forest Soils. *Molecules*, 26, 9, 2480, 2021.

DOI:10.3390/molecules26092480

Onodera T., Komatsu K., Kohzu A., Kanaya G., Mizuochi M., Syutsubo K.

Evaluation of stable isotope ratios ($\delta^{15}\text{N}$ and $\delta^{18}\text{O}$) of nitrate in advanced sewage treatment processes: Isotopic signature in four process types. *Science of the Total Environment*, 762, 25, 144120, 2021.

<https://doi.org/10.1016/j.scitotenv.2020.144120>

Matsuzaki S. S., Tanaka A., Kohzu A., Suzuki K., Komatsu K., Shinohara R., Nakagawa M., Nohara S., Ueno R., Satake K., Hayashi S.

Seasonal dynamics of the activities of dissolved ^{137}Cs and the ^{137}Cs of fish in a shallow, hypereutrophic lake: Links to bottom-water oxygen concentrations. *Science of The Total Environment*, 761, 20, 143257, 2021.

<https://doi.org/10.1016/j.scitotenv.2020.143257>

Yaacob N. S., Ahmad M. F., Kawasaki N., Maniyam M. N., Abdullah H., Hashim E. F., Sjahrir F., Ikram W. M., Komatsu K., Kuwahara V. S.

Kinetics Growth and Recovery of Valuable Nutrients from Selangor Peat Swamp and Pristine Forest Soils Using Different Extraction Methods as Potential Microalgae Growth Enhancers. *Molecules*, 26, 3, 653, 2021.

Kazama T., Hayakawa K., Kuwahara V. S., Shimotori K., Imai A., Komatsu K.

Development of photosynthetic carbon fixation model using multi-excitation wavelength fast repetition rate fluorometry in Lake Biwa. *Plos ONE*, 16, 2, e0238013, 2021.

Kenji Tsuchiya, Noriko Tomioka, Kazuhiro Komatsu, Tomoharu Sano, Ayato Kohzu, Akio Imai,

Kazuhide Hayakawa, Takamaru Nagata, Takahiro Okamoto, Tomoyuki Ohara

Horizontal variability and regulation of bacterial production in Lake Biwa, Japan. *Limnology*, 23, 231-243, 2022.

DOI:10.1007/s10201-021-00687-7

Elda Zoraida Piña-Salazar, Kento Sagisaka, Takuya Hayashi, Yoshiyuki Hattori, Toshio Sakai, Eiji Ôsawa, Katsumi Kaneko

Pore-Mouth Structure of Highly Agglomerated Detonation Nanodiamonds. *Nanomaterials*, 11, 11, 2772, 2021.

DOI:10.3390/nano11112772

Satoshi Tamura, Ryotaro Kiyono, Toshihiro Hirai

Dielectric Elastomer Actuator Behavior of Silicone/Cyanoethylsucrose Composite films: Morphology and Space-Charge Distribution. *Nano Select*, 2, 2240-2450, 2021.

DOI: 10.1002/nano.202100023

Satoshi Tamura, Ryotaro Kiyono, Toshihiro Hirai

Solvent Composition Effect on PDMS Composite Dielectric Elastomer Actuator. *Materials Sciences and Applications*, 12, 11, 504-518, 2021.

DOI:10.4236/msa.2021.1211033

小山 茂, 瀬瀬恭敏

ニューラルネットワークを利用した振動特性に基づく梁の損傷同定. *AI・データサイエンス論文集*, 2, J2, 386-392, 2021.

Nguentra Sucheewa, Winadda Wongwiriyan, Annop Klamchuen, Michiko Obata, Masatsugu Fujishige,

Kenji Takeuchi, Tossaporn Lertvanithphol, Tuksadon Wutikhun, Saifon Kullyakool, Wanwalee Aut-tasiri,

Nataporn Sowasod, Theerayut Prataen, Wiwut Tanthapanichakoon, Jiti Nukeaw

Tailoring Properties of Hafnium Nitride Thin Film via Reactive Gas-Timing RF Magnetron Sputtering for Surface Enhanced-Raman Scattering Substrates. *Crystals*, 12, 1, 78, 2022.

DOI:10.3390/cryst12010078

JL Fajardo-Diaz, A. Morelos-Gomez, R. Cruz-Silva, A. Matsumoto, Y. Ueno, N. Takeuchi, K. Kitamura,

H. Miyakawa, S. Tejima, K. Takeuchi, K. Tsuzuki, M. Endo

Antifouling performance of spiral wound type module made of carbon nanotubes/polyamide composite RO membrane for seawater desalination. *Desalination*, 523, 115445, 2022.

DOI:10.1016/j.desal.2021.115445

Shinji Nakaya, Aiko Yamamoto, Takuma Kawanishi, Noriyuki Toya, Hiroki Miyakawa, Kenji Takeuchi,

Morinobu Endo

Detection of dynamic biofouling from adenosine triphosphate measurements in water concentrated from reverse osmosis desalination of seawater. *Desalination*, 518, 115286, 2021.

DOI:10.1016/j.desal.2021.115286

A. Morelos-Gomez, S. Terashima, A. Yamanaka, R. Cruz-Silva, J. Ortiz-Medina, R. Sanchez-Salas, JL Fajardo-Diaz, E. Munoz-Sandoval, F. Lopez-Urias, K. Takeuchi, S. Tejima, M. Terrones, M. Endo
Graphene oxide membranes for lactose-free milk. *Carbon*, 181, 118-129, 2021.

DOI:10.1016/j.carbon.2021.05.005

Ryo Omagari, Yuichi Miyabara, Shunji Hashimoto, Takashi Miyawaki, Masashi Toyota, Kiwao Kadokami, Daisuke Nakajima

The rapid survey method of chemical contamination in floods caused by Typhoon Hagibis by combining in vitro bioassay and comprehensive analysis. *Environment International*, 159, 107017, 2022.

DOI:10.1016/j.envint.2021.107017

奥田雅貴, 入江政安, 中谷祐介, 宮原裕一, 豊田政史

底面熱輸送を考慮した諏訪湖の弱い水温成層形成に関するモデル解析. *土木学会論文集B1 (水工学)*, 77, 2, I_1081-I_1086, 2021.

Makoto Takeda, Daisuke Sato, Kenji Kawaike, Masashi Toyota

Inundation Analysis of the Dike Breach of the Chikuma River Taking Drainage Process and House Damage into Consideration. *Journal of Disaster Research*, 16, 3, 343-350, 2021.

DOI:10.20965/jdr.2021.p0343

X. Cao, N. Yanagisawa, N. Kurosawa, H. Miyashita

A Study on the Ultimate Velocity for Vehicles Going through Roadway Curves to Avert Sideslip. *European J. of Eng. and Tech. Research*, 7, 1, 78-84, 2022.

水野翔太, 近広雄希, 小山 茂

張弦構造を利用したアルミニウム合金桁の材料コスト最小化の試み. *構造工学論文集*, 68 (A), 102-111, 2022.

善財聖也, 近広雄希, 清水 茂, 大上俊之

補剛材剛比がコンクリート充填鋼製橋脚の挙動に及ぼす影響. *鋼構造論文集*, 28, 110, 61-72, 2021.

K. Chanthamanivong, I. Ario, Y. Chikahiro

Smart design of coupling scissors-type bridge. *Structures*, 30, 206-216, 2021.

DOI:10.1016/j.istruc.2020.12.044

機械システム工学科

Hideyuki Sugioka, Wataru Tomita, Mitsuhiro Tanaka

Metachronal motion of a thermally actuated double pendulum driven by self-propulsion caused by spontaneous asymmetrical heat transfer. *J. Appl. Phys.* 129, 24, 244701, 2021.

DOI:10.1063/5.0054399

Hideyuki Sugioka, Hiroki Yoshijima

Metachronal motion of artificial cilia using induced charge electro-osmosis. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 626, 127023, 2021.

DOI:10.1016/j.colsurfa.2021.127023

Hideyuki Sugioka, Koshi Ueno

Experimental demonstration of closing and opening motions of an elastic valve using induced charge electro-osmosis in a flow. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 628, 127334, 2021.

DOI:10.1016/j.colsurfa.2021.127334

Hideyuki Sugioka, Mitsuhiro Tanaka

High-Speed Swimmer Self-Propelled by Spontaneous Asymmetrical Heat Transfer. *Journal of the Physical Society of Japan*, 90, 8, 084401, 2021.

DOI:10.7566/JPSJ.90.084401

Hideyuki Sugioka, Yusuke Someya

Light-driven boats using asymmetrical convection flow. *J. Appl. Phys.* 130, 8, 084702, 2021.

DOI:10.1063/5.0061490

Hideyuki Sugioka, Taiki Kado, Hiroya Nakamura

Stretchable carbon actuator using induced charge electro-osmosis. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 629, 127467, 2021.

DOI:10.1016/j.colsurfa.2021.127467

Hideyuki Sugioka, Narifumi Higuchi, Yusuke Someya

Self-propelled bubble pump in a nucleate boiling regime. *Japanese Journal of Applied Physics*, 60, 10, 108001, 2021.

DOI:10.35848/1347-4065/ac22ec

Hideyuki Sugioka

Expanded ion-conserving Poisson-Boltzmann theory at extremely-high. *Colloids and Surfaces A*, 630, 127667, 2021.

DOI:10.1016/j.colsurfa.2021.127667

Hideyuki Sugioka, Yuya Hanazawa, Masato Ishikawa

Novel self-periodic motion due to induced charge electrokinetic phenomena in porous materials. *Journal of the Physical Society of Japan*, 90, 12, 124402, 2021.

DOI:10.7566/JPSJ.90.124402

Hideyuki Sugioka, Mitsuhiro Tanaka

Thermally Actuated Elastic Cilium Using a Self-Oscillation Phenomenon Due to a Spontaneous Asymmetrical Heat Transfer. *Journal of the Physical Society of Japan*, 91, 044402, 2022.

Hideyuki Sugioka, Saki Hatanaka, Yusuke Someya

Sustainable light-driven water pump using Büttiker-Landauer ratchet. *Appl. Phys. Lett.* 120, 123901, 2022.

Hideyuki Sugioka, Koshi Ueno

Asymmetrical motion of electrically actuated cilium using induced charge electro-osmosis with asymmetrical joint structure. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 644, 128833, 2022.

Ryo Nakata, Masaya Tanemura, Yuichi Chida

Undershoot responses of circular path-following control for a vehicle based on time-state control form. *IFAC Papers OnLine*, 54-14, 66-71, 2021.

Nijihiko Ishihara, Yuichi Chida, Masaya Tanemura

Experimental verification of multirate and model predictive control for discrete-valued control systems. *Mechanical Engineering Journal*, 8, 5, 1-12, 2021.

<https://doi.org/10.1299/mej.21-00043>

三橋朋也, 千田有一, 種村昌也

入力時間補正を用いたオンオフ駆動型履帯車両のサーボ制御. *計測自動制御学会論文集*, 57, 6, 1-11, 2021.

松本雄大, 田中健人, 中村正行

太陽光発電施設への太陽電池アレイの配置最適化. *日本機械学会論文集*, 87, 899, 21-00066, 2021.

DOI:10.1299/transjsme.21-00066.

Satoshi Suzuki, Daisuke Endo, Kimitoshi Yamazaki

Posture evaluation for mobile manipulators using manipulation ability, tolerance on grasping, and pose error of end-effector. *Advanced robotics*, 35, 10, 603-618, 2021.

DOI:10.1080/01691864.2021.1899986

Kimitoshi Yamazaki, Taiki Abe

A versatile end-effector for pick-and-release of fabric parts. *IEEE robotics and automation letters*, 6, 2, 1431-1438, 2021.

DOI:10.1109/LRA.2021.3057053

Daisuke Tanaka, Solvi Arnold, Kimitoshi Yamazaki

Disruption-resistant deformable object manipulation on basis of online shape estimation and prediction-driven trajectory correction. *IEEE robotics and automation letters*, 6, 2, 3809-3816, 2021.

DOI:10.1109/LRA.2021.3060679

Kotaro Nagahama, Satonori Demura, Kimitoshi Yamazaki

Robot learning of tool manipulation based on visual teaching with mitate expression. *Advanced robotics*, 32-12, 741-755, 2021.

DOI:10.1080/01691864.2021.1914724

Kimitoshi Yamazaki, Kazuki Nogami, Kotaro Nagahama

Viewpoint planning for object identification using visual experience according to long-term activity. *International journal of automation technology*, 16, 2, 197-207, SI, 2022.

DOI:10.20965/ijat.2022.p0197

Changjian Ying, Yaqiang Mo, Yuichiro Matsuura, Kimitoshi Yamazaki

Pose estimation of a small connector attached to the tip of a cable sticking out of a circuit board. *International journal of automation technology*, 16, 2, 208-217, SI, 2022.

DOI:10.20965/ijat.2022.p0208

Suqiong Xie, Kentaro Yaji, Toru Takahashi, Hiroshi Isakari, Masato Yoshino, Toshiro Matsumoto

Topology optimization for incompressible viscous fluid flow using the lattice kinetic scheme. *Computers and Mathematics with Applications*, 97, 251-266, 2021.

DOI:10.1016/j.camwa.2021.05.032

Shunsuke Abe, Takashi Morimoto, Tatsunori Asaoka, Hiroyuki Kumano

Study on the apparent specific heat of sugar alcohol slurries. *Journal of Energy Storage*, 42, 103026(7pages), 2021.

DOI:10.1016/j.est.2021.103026

坂本歩巳, 阿部駿佑, 浅岡龍徳

中低温用熱媒体エリスリトールスラリーの冷却円管内における熱伝達特性. *日本冷凍空調学会論文集*, 38, 4, 327-339, 2021.

Naoto Ogawa, Mirei Goto, Shouichiro Iio, Takaya Kitahora, Young-Do Choi, Morihito Inagaki

Performance improvement of cross-flow turbine with a cylindrical cavity and guide wall. *Journal of fluids engineering*, 143, 12, 121104, 2021.

DOI:10.1115/1.4052046

Kotaro Takamure, Haotian Wang, Tomomi Uchiyama, Shouichiro Iio, Toshihiko Ikeda

Vortex-in-cell simulation of the flow and performance of a Savonius hydraulic turbine with S-shaped blades. *Journal of renewable and sustainable energy*, 13, 044501, 2021.

DOI:10.1063/5.0051203

高牟礼光太郎, 谷 強, 出川智啓, 内山知実, 飯尾昭一郎, 池田敏彦

遮へい板が設置されたサボニウス水車の流れと性能の数値シミュレーション. *日本機械学会論文集*, 86, 887,

20-00181-20-00181, 2021.

Satoru Sakai, Daiki Nakabayashi

On the Geometric Featureless Visual Velocity of UGV in an Agriculture Scale. *Journal of Robotics and Mechatronics*, 33, 6, 1255-1264, 2021.

DOI:10.20965/jrm.2021.p1255

Ryo Arai, Satoru Sakai, Akihiro Tatsuoka, Qin Zhang

Analytical, Experimental, and Numerical Investigation of Energy in Hydraulic Cylinder Dynamics of Agriculture Scale Excavators. *Energies*, 14, 19, 6210, 2021.

加藤輝雄, 新井 遼, 酒井 悟

油圧アームのための同定入力の修正法と応用. *日本フルードパワーシステム学会論文集*, 53, 1, 10-17, 2021.

Kosuke Suzuki, Kou Ishizaki, Masato Yoshino

Local force calculations by an improved stress tensor discontinuity-based immersed boundary-lattice Boltzmann method. *Physics of Fluids*, 33, 4, 047104, 2021.

DOI:10.1063/5.0044268

Kosuke Suzuki, Takuya Kuroiwa, Tatsunori Asaoka, Masato Yoshino

Particle-resolved simulations of ice slurry flows in a square duct by the thermal immersed boundary-lattice Boltzmann method. *Computers & Fluids*, 228, 105064, 2021.

DOI:10.1016/j.compfluid.2021.105064

Kosuke Suzuki, Masashi Nakamura, Masaya Kouji, Masato Yoshino

Revisiting the flight dynamics of take-off of a butterfly: experiments and CFD simulations for a cabbage white butterfly. *Biology Open*, bio.059136, 2022.

高山潤也, 鈴木健斗, 萩原大資

構造物内部の高精度診断のためのマイクロ波レーダの信号処理. *計測自動制御学会論文集*, 57, 4, 227-236, 2021.

Jun-ya Takayama, Yuki Ohara, Wei Sun

Nondestructive evaluation of air voids in concrete structures using microwave radar technique. *SICE Journal of Control, Measurement, and System Integration*, 15, 1, 36-47, 2022.

西村正臣, 中田政宗

エポキシ樹脂モデルの架橋構造と変形挙動に関する分子動力学的研究. *計算数理工学論文集*, 21, 99-109, 2021.

小成佳史, 河野研二, 池田貢基, 牛 立斌

合金化溶融亜鉛めっき鋼板の亜鉛-鉄合金相および鉄-亜鉛固溶相の防食性評価. *材料と環境*, 70, 5, 170-176, 2021.

Garuda Fujii, Youhei Akimoto

Electromagnetic-acoustic biphysical cloak designed through topology optimization. *Optics Express*, 30, 4, 6090-6106, 2022.

DOI:10.1364/OE.450787

Motoaki Ota, Garuda Fujii

Mechanical unfeability concentrator through topology optimization. *Applied Physics Letters*, 120, 1, 011103, 2022.

DOI:10.1063/5.0073343

Yoshinori Shiihara, Ryosuke Kanazawa, Daisuke Matsunaka, Ivan Lobzenko, Tomohito Tsuru,

Masanori Kohyama, Hideki Mori

Artificial neural network molecular mechanics of iron grain boundaries. *Scripta Mater.*, 207, 114268, 2021.

DOI:10.1016/j.scriptamat.2021.114268

建築学科

堀田翔平, 寺内美紀子

狭小敷地に建つ開放型積層住宅の空間構成. 日本建築学会計画系論文集, 86, 790, 2561-2569, 2021.

Kosuke Hato

The Meaning of Practicing Calligraphy in the Written Works of Architect Seiichi Shirai: Focusing on the relation to the Theory of Tradition. *Japan Architectural Review*, 4, 3, 495-503, 2021.

DOI:10.1002/2475-8876.12228

渡邊 望, 羽藤広輔

大高正人の著作にみる伝統論の展開. 日本インテリア学会論文報告集, 32, 43-50, 2022.

羽藤広輔, 羽鳥亮子

1950年代の谷口吉郎の著作にみる伝統論. 日本インテリア学会論文報告集, 32, 51-58, 2022.

原田雅之, 柳瀬亮太, 小濱朋子

公共空間における表示物の「見落とし」に影響する環境要因の検討: 若年者を対象とする実験室実験の分析. *人間・環境学会誌*, 48, 24, 2022.

Hyuntae Kim, Taewoo Kim, Sihwan Lee

A study on the measurement of unregulated pollutants in Korean residential environments. *Buildings*, 12, 2, 243, 2022.

DOI:10.3390/buildings12020243

Yohei Endo, Pere Roca

Comparison of similitude laws applied to multi-storey historical masonry structures with flexible diaphragms. *Journal of Earthquake Engineering*, 2022.

DOI:10.1080/13632469.2022.2040655

Yohei Endo, Yuta Waki, Yasushi Niitsu, Toshikazu Hanazato

Dynamic identification tests of 20th century historic masonry buildings in Japan. *Geohazards*, 2, 4, 332-351, 2021.

DOI: 10.3390/geohazards2040018

Mija Milić, Mislav Stepinac, Luka Lulić, Nataša Ivanišević, Ivan Matorić, Boja Šipoš Čačić, Yohei Endo

Assessment and rehabilitation of culturally protected Prince Rudolf infantry barracks in Zagreb after major earthquake. *Buildings*, 11, 11, 508, 2021.

DOI:10.3390/buildings11110508

Yohei Endo, Takaharu Yasue

Safety Evaluation of a RC Structure with Multiple Openings Under High Water Depth Inundations. *Applied Sciences-Basel*, 11, 9, 4297, 2021.

DOI:10.3390/app11094297

Yohei Endo, Hideki Takamura

Evaluation of life-cycle assessment analysis: application to new constructions and restoration projects in alpine climate. *Sustainability*, 13, 7, 3608, 2021.

DOI:10.3390/su13073608

Yohei Endo, Toshikazu Hanazato

Seismic assessment of two multi-tiered pagodas damaged by the 2015 Nepal earthquake. *Earthquake Engineering and Engineering Vibrations*, 20, 2, 453-469, 2021.

DOI:10.1007/s11803-021-2031-x

Fumiko Ikemoto, Kosuke Sakura, Adrián Torres Astaburuaga

The Influence of Historical Irrigation Canals on Urban Morphology in Valencia, Spain. *Land*, 10, 7, 738, 1-28, 2021.

Tatsuki Kainaga, Kengo Sagisaka, Rintaro Yamada, Takashi Nakaya

A Case Study of a Nursing Home in Nagano, Japan: Field Survey on Thermal Comfort and Building Energy Simulation for Future Climate Change. *Energies*, 15, 3, 936, 2022.

DOI:10.3390/en15030936

Hiroki Ikeda, Yasushi Ooi, Takashi Nakaya

Underfloor Heating Using Room Air Conditioners with Air Source Heat Pump in a Foundation Insulation House. *Energies*, 14, 21, 7034, 2021.

DOI:10.3390/en14217034

Akito Nakagawa, Takashi Nakaya

A survey of clothing insulation for university students in Japan: Effect of clothing insulation distribution between the upper and lower body in a cold environment. *Journal of Building Engineering*, 44, 103287, 2021.

DOI:10.1016/j.jobe.2021.103287

鈴木麻純, 松元良枝, 木村悟隆, 長谷川兼一, 中谷岳史

令和2年7月豪雨により浸水した住宅の復旧作業に関する調査報告. *日本建築学会技術報告集*, 69, 1066-1071, 2022.

堀江真太郎, 中谷岳史, リジャル. H. バハドゥル, 高木直樹

住宅における熱的快適性と寒冷ストレスに関する研究 冬期の長野県長野市を対象として. *日本建築学会環境系論文集*, 87, 793, 211-221, 2022.

DOI: <https://doi.org/10.3130/aije.87.211>

坂本知萌巳, 高木直樹, 中谷岳史

地方都市のコンパクトシティ政策による経年変化の分析と評価－富山市と長野市を対象として－. *都市計画論文集*, 56, 2, 217-223, 2021.

松田昌洋, 五十田 博, 金子洋文, 角田功太郎, 荒木康弘, 中川貴文

同一の仕様や壁量で構成される木造耐力壁の地震時応答変位のばらつき. *日本建築学会構造系論文集*, 86, 785, 1074-1083, 2021.

Hiroshi Isoda, Masahiro Matsuda, Solomon Tesfamariam, Shinichiro Tamori

Shake table test of full-size wooden houses versus wall test result: comparison of load-deformation relationship. *Journal of Performance of Constructed Facilities*, 35, 5, 04021043, 2021.

DOI:10.1061/(ASCE)CF.1943-5509.0001609

工学基礎部門

Jun Kawabe

Nonadditive measures and nonlinear integrals – focusing on a theoretical aspect –. *Sugaku Expos.*, 34, 61-92, 2021.

Jun Kawabe

The completeness and separability of the Lorentz spaces defined by the Sugeno and Shilkret integrals. *Linear Nonlinear Anal.*, 7, 265-284, 2021.

Jun Kawabe

The topology on the space of measurable functions that is compatible with convergence in nonadditive mea-

- sure. *Fuzzy Sets Syst.*, 430, 1-18, 2022.
- Hiroki Ishihara, Arseniy Kuzmin, Masahiro Kobayashi, Taichi Shikama, Keiji Sawada, Seiki Saito, Hiroaki Nakamura, Keisuke Fujii, Masahiro Hasuo, the LHD Experiment Group
Ro-vibrational population distribution in the ground state of hydrogen isotopologues in LHD peripheral plasmas deduced from emission spectroscopy. *JQSRT.* 267, 107592, 2021.
<https://doi.org/10.1016/j.jqsrt.2021.107592>
- Hiroaki Nakamura, Seiki Saito, Takumi Sawada, Keiji Sawada, Gakushi Kawamura, Masahiro Kobayashi, Masahiro Hasuo
Isotope effect of rovibrational distribution of hydrogen molecules desorbed from amorphous carbon. *Jpn. J. Appl. Phys.* 61, SA1005, 2022.
DOI:10.35848/1347-4065/ac2435
- Hiroki Gamo, Naomichi Ezumi, Tsukasa Sugiyama, Kunpei Nojiri, Ayane Kondo, Mafumi Hirata, Junko Kohagura, Masayuki Yoshikawa, Yousuke Nakashima, Dogyun Hwangbo, Mizuki Sakamoto, Renato Perillo, Tatsuya Kuwabara, Hirohiko Tanaka, Noriyasu Ohno, Keiji Sawada, Akira Tonegawa, Suguru Masuzaki
Influence of Nitrogen Ratio on Plasma Detachment during Combined Seeding with Hydrogen on Divertor Simulation Experiment of GAMMA 10/PDX. *Plasma and Fusion Research*, 16, 2402041, 2021.
<https://doi.org/10.1585/pfr.16.2402041>
- Akihiro Narimatsu, Hiromichi Ohno, Kazuyuki Wada
Unitary equivalence classes of split-step quantum walks. *Quantum Inf. Process.*, 20, 11, 368, 2021.
DOI:10.1007/s11128-021-03323-6
- Dariusz Chruściński, Ryohei Fujii, Gen Kimura, Hiromichi Ohno
Constraints for the spectra of generators of quantum dynamical semigroups. *Linear Algebra Appl.*, 630, 293-305, 2021.
DOI:10.1016/j.laa.2021.08.012
- Toru Fuda, Akihiro Narimatsu, Kei Saito, Akito Suzuki
Spectral analysis for a multi-dimensional split-step quantum walk with a defect. *Quantum Stud.:Math. Found.*, 9, 1, 93-112, 2021.
DOI:10.1007/s40509-021-00258-6
- Maeda Masaya, Sasaki Hironobu, Segawa Etsuo, Suzuki Akito, Suzuki Kanako
Dispersive estimates for quantum walks on 1D lattice. *J. Math. Soc. Japan* 74, 1, 217-246, 2022.
DOI:10.2969/jmsj/85218521
- Ikki Fukuda, Yuya Kiri, Wataru Saito, Yoshihiro Ueda
Stability criteria for the system of delay differential equations and its applications. *Osaka J. Math.*, 59, 1, 235-251, 2022.

航空機システム共同研究講座

-
- 堀 健太郎, 望月大地, 菊池良巳, 曾根原 誠, 脇若弘之, 佐藤敏郎
Cu/SPCC複合材ディスクを用いた三相交流励磁渦電流ブレーキの制動トルク. *日本AEM学会誌*, 29, 2, 191-196, 2021.
- 志賀大樹, 角 太一郎, 菊池良巳, 脇若弘之, 曾根原 誠, 佐藤敏郎
円筒型磁気粘性流体ブレーキの基礎検討. *日本AEM学会誌*, 29, 2, 303-308, 2021.
- 大川慎之介, 田代晋久, 脇若弘之, 中村善宏, 町田和俊

- ステップ応答法による金属判別のための機械学習結果の評価. 電気学会論文誌A, 141, 4, 233-238, 2021.
- 小澤悠平, 田代晋久, 脇若弘之, 水野 勉, 大宮直木
磁気誘導磁石保管用磁気シールド設計のための簡易解析モデルの検討. 電気学会論文誌A, 141, 5, 333-338, 2021.
- 内山純一郎, 後藤拓哉, 田代晋久, 脇若弘之, 直江正幸
FeCoV磁性線を用いた磁気式トルクセンサの検討. 日本AEM学会誌, 29, 2, 495-500, 2021.
- 後藤拓哉, 内山純一郎, 田代晋久, 脇若弘之, 直江正幸
FeCoV磁性線を用いた磁気双安定素子による環境磁界発電装置の試作. 日本AEM学会誌, 29, 3, 595-600, 2021.

社会基盤研究所

- Kotaro Nagahama, Satonori Demura, Kimitoshi Yamazaki
Robot learning of tool manipulation based on visual teaching with mitate expression. *Advanced Robotics*, 32, 12, 741-755, 2021.
DOI:10.1080/01691864.2021.1914724

先鋭材料研究所

- Fugetsu, B., Kiliyankil, V. A., Takiguchi, S., Sakata, I., Endo, M.
A finger-jointing model for describing ultrastructures of cellulose microfibrils. *Scientific Reports*, 11, 1, 10055, 2021.
DOI:10.1038/s41598-021-89435-6.
- Kiliyankil, V. A., Fugetsu, B., Sakata, I., Wang, Z. P., Endo, M.
Aerogels from copper (II)-cellulose nanofibers and carbon nanotubes as absorbents for the elimination of toxic gases from air. *Journal of Colloid and Interface Science*, 582, 950-960, 2021.
DOI:10.1016/j.jcis.2020.08.100.
- Nakaya, S., Yamamoto, A., Kawanishi, T., Toya, N., Miyakawa, H., Takeuchi, K., Endo, M.
Detection of dynamic biofouling from adenosine triphosphate measurements in water concentrated from reverse osmosis desalination of seawater. *Desalination*, 518, 115286, 2021.
DOI:10.1016/j.desal.2021.115286.
- Rodriguez-Corvera, C. L., Elias, A. L., Morelos-Gomez, A., Endo, M., Munoz-Sandoval, E., Lopez-Urias, F.
Hybrid materials based on pyrrhotite, troilite, and few-layered graphitic nanostructures: Synthesis, characterization, and cyclic voltammetry studies. *Applied Surface Science*, 563, 150327, 2021.
DOI:10.1016/j.apsusc.2021.150327.
- Lopez-Urias, F., Martinez-Iniesta, A. D., Morelos-Gomez, A., Munoz-Sandoval, E.
Tuning the electronic and magnetic properties of graphene nanoribbons through phosphorus doping and functionalization. *Materials Chemistry and Physics*, 265, 13, 124450, 2021.
DOI:10.1016/j.matchemphys.2021.124450.
- Martinez-Iniesta, A. D., Morelos-Gomez, A., Munoz-Sandoval, E., Lopez-Urias, F.
Nitrogen-phosphorus doped graphitic nano onion-like structures: experimental and theoretical studies. *Rsc Advances*, 11, 5, 2793-2803, 2021.
DOI:10.1039/d0ra10019f.
- Morelos-Gomez, A., Terashima, S., Yamanaka, A., Cruz-Silva, R., Ortiz-Medina, J., Sanchez-Salas, R.,

- Fajardo-Díaz, J. L., Muñoz-Sandoval, E., López-Urías, F., Takeuchi, K., Tejima, S., Terrones, M., Endo, M.
Graphene oxide membranes for lactose-free milk. *Carbon*, 181, 118–129, 2021.
DOI:10.1016/j.carbon.2021.05.005.
- Morelos-Gómez, A., Terrones, M., Endo, M.
Data Science Applied to Carbon Materials: Synthesis, Characterization, and Applications. *Advanced Theory and Simulations*, 5, 2, 2100205, 2021.
DOI:10.1002/adts.202100205
- Cruz-Silva, R., Elias, A. L.
Reversible fusion-fission fibers. *Science*, 372, 6542, 573–573, 2021.
DOI:10.1126/science.abh2283.
- Lei, Y., Pakhira, S., Fujisawa, K., Liu, H., Guerrero-Bermea, C., Zhang, T., Dasgupta, A., Martínez, L. M., Singamaneni, S. R., Wang, K., Shallenberger, J., Elías, A. L., Cruz-Silva, R., Endo, M., L. Mendoza-Cortés, J., Terrones, M.
Low temperature activation of inert hexagonal boron nitride for metal deposition and single atom catalysis. *Mater Today*, 51, 108–116, 2021.
DOI:10.1016/j.mattod.2021.09.017
- L. Fajardo-Díaz, J., Morelos-Gómez, A., Cruz Silva, R., Matsumoto, A., Ueno, Y., Takeuchi, N., Kitamura, K., Miyakawa, H., Tejima, S., Takeuchi, K., Tsuzuki, K., Endo, M.
Antifouling performance of spiral wound type module made of carbon nanotubes/polyamide composite RO membrane for seawater desalination. *Desalination*. *Desalination*, 523, 115445, 2022.
DOI:10.1016/j.desal.2021.115445
- A. Quintanilla, G. Vega, J. Carbajo, J. A. Casas, Y. Lei, K. Fujisawa, H. Liu, R. Cruz-Silva, M. Terrones, P. Miranzo, M. I. Osendi, M. Belmonte, J. Fernández Sanz
Understanding the active sites of boron nitride for CWPO: An experimental and computational approach. *Chemical Engineering Journal*, 406, 126846, 2021.
DOI:10.1016/j.cej2020.126846
- Bolibok P., Koter S., Kaczmarek-Kedziera A., Kowalczyk P., Lukomska B., Lukomska O., Boncel S., Wisniewski M., Kaneko, K., Terzyk A. P.
Liquid phase adsorption induced nanosizing of graphene oxide. *Carbon*, 183, 948–957, 2021.
DOI:10.1016/j.carbon.2021.07.101
- Bieniek A., Terzyk A. P., Wisniewski M., Roszek K., Kowalczyk P., Sarkisov L., Keskin S., Kaneko K.
MOF materials as therapeutic agents, drug carriers, imaging agents and biosensors in cancer biomedicine: Recent advances and perspectives. *Progress in Materials Science*, 117, 100743, 2021.
DOI:10.1016/j.pmatsci.2020.100743
- Kamijyou Y., Kukobat R., Sakai T., Kaneko K.
Nanopore structure analysis of single wall carbon nanotube xerogels and cryogels. *Adsorption-Journal of the International Adsorption Society*, 27, 4, 673–681, 2021.
DOI:10.1007/s10450-021-00315-x
- Wang S. W., Vallejos-Burgos F., Furuse A., Yoshikawa Y., Tanaka H., Kaneko, K.
The subtracting pore effect method for an accurate and reliable surface area determination of porous carbons. *Carbon*, 175, 77–86, 2021.
DOI:10.1016/j.carbon.2020.12.075
- Wang S., Yoshikawa Y., Wang Z., Tanaka H., Kaneko K.
Highly oxidation-resistant graphene-based porous carbon as a metal catalyst support. *Carbon Trends*, 3,

100029, 2021

Piña-Salazar E. Z., Sagisaka K., Hayashi T., Hattori Y., Sakai T., Ōsawa E., Kaneko K.

Pore-Mouth Structure of Highly Agglomerated Detonation Nanodiamonds. *Nanomaterials*, 11, 11, 2772, 2021.

DOI:10.3390/nano11112772

Kukobat R., Sakai M., Furuse A., Otsuka H., Tanaka H., Hayashi T., Matsukata M., Kaneko K.,

Apatite-Graphene Interface Channel-Aided Rapid and Selective H₂ Permeation. *J. Phys. Chem. C*, 126, 7, 3653-3660, 2022.

DOI: 10.1021/acs.jpcc.1c08928

Shanshan Chen, Junie Jhon M. Vequizo, Zhenhua Pan, Takashi Hisatomi, Mamiko Nakabayashi, Lihua Lin,

Zheng Wang, Kosaku Kato, Akira Yamakata, Naoya Shibata, Tsuyoshi Takata, Taro Yamada, Kazunari Domen
Surface modifications of (ZnSe)_{0.5}(CuGa_{2.5}Se_{4.25})_{0.5} to promote photocatalytic Z-scheme overall water splitting.
Journal of the American Chemical Society, 143, 28, 10633-10641, 2021.

DOI:10.1021/jacs.1c03555

Makoto Ebihara, Takeshi Ikeda, Sayuri Okunaka, Hiromasa Tokudome, Kazunari Domen, Kenji Katayama

Charge carrier mapping for Z-scheme photocatalytic water-splitting sheet via categorization of microscopic time-resolved image sequences. *Nature Communications*, 12, 1, 3716, 2021.

DOI:10.1038/s41467-021-24061-4

Chao Feng, Faze Wang, Zhi Liu, Mamiko Nakabayashi, Yequan Xiao, Qiugui Zeng, Jie Fu, Qianbao Wu,

Chunhua Cui, Yifan Han, Naoya Shibata, Kazunari Domen, Ian D. Sharp, Yanbo Li

A self-healing catalyst for electrocatalytic and photoelectrochemical oxygen evolution in highly alkaline conditions. *Nature Communications*, 12, 1, 5980, 2021.

DOI:10.1038/s41467-021-26281-0

Tomohiro Higashi, Yutaka Sasaki, Yudai Kawase, Hiroshi Nishiyama, Masao Katayama, Kazuhiro Takanabe, Kazunari Domen

Surface-modified Ta₃N₅ photoanodes for sunlight-driven overall water splitting by photoelectrochemical cells. *Catalysts*, 11, 5, 584, 2021.

DOI:10.3390/catal11050584

Yosuke Kageshima, Yui Gomyo, Hikaru Matsuoka, Hiroto Inuzuka, Hajime Suzuki, Ryu Abe, Katsuya Teshima, Kazunari Domen, Hiromasa Nishikiori

Z-Scheme overall water splitting using Zn_xCd_{1-x}Se particles coated with metal cyanoferrates as hydrogen evolution photocatalysts. *ACS Catalysis*, 11, 13, 8004-8014, 2021.

DOI:10.1021/acscatal.1c01187

Yosuke Kageshima, Toshiki Kawanishi, Daisuke Saeki, Katsuya Teshima, Kazunari Domen, Hiromasa Nishikiori

Boosted hydrogen-evolution kinetics over particulate lanthanum and rhodium-doped strontium titanate photocatalysts modified with phosphonate groups. *Angewandte Chemie-International Edition*, 60, 7, 3654-3660, 2021.

Yosuke Kageshima, Haruka Momose, Fumiaki Takagi, Sora Fujisawa, Tetsuya Yamada, Katsuya Teshima, Kazunari Domen, Hiromasa Nishikiori

A semitransparent particulate photoanode composed of SrTiO₃ powder anchored on titania nanosheets. *Sustainable Energy & Fuels*, 5, 19, 4850-4857, 2021.

Yosuke Kageshima, Sota Shiga, Tatsuki Ode, Fumiaki Takagi, Hiromasa Shiiba, Myo Than Htay,

Yoshio Hashimoto, Katsuya Teshima, Kazunari Domen, Hiromasa Nishikiori

Photocatalytic and photoelectrochemical hydrogen evolution from water over Cu₂Sn_xGe_{1-x}S₃ particles. *Jour-*

nal of American Chemical Society, 143, 15, 5698–5708, 2021.

DOI:10.1021/jacs.0c12140

Yudai Kawase, Tomohiro Higashi, Masao Katayama, Kazunari Domen, Kazuhiro Takanabe

Maximizing oxygen evolution performance on a transparent NiFeO_x/Ta₃N₅ photoelectrode fabricated on an insulator. ACS Applied Materials and Interfaces, 13, 14, 16317–16325, 2021.

DOI:10.1021/acsami.1c00826

Takumu Kosaka, Tomohiro Ando, Takashi Hisatomi, Hiroshi Nishiyama, Yuanshu Zhou, Kazunari Domen, Yasufumi Takahashi, Hiroshi Onishi

Microelectrode-based transient amperometry of O₂ adsorption and desorption on a SrTiO₃ photocatalyst excited under water. Physical Chemistry Chemical Physics, 23, 35, 19386–19393, 2021.

DOI:10.1039/d1cp03264j

Huihui Li, Daling Lu, Shanshan Chen, Takashi Hisatomi, Jiadong Xiao, Zheng Wang, Lihua Lin, Qi Xiao, Yuliang Sun, Junie Jhon M. Vequizo, Yugo Miseki, Kazuhiro Sayama, Akira Yamakata, Tsuyoshi Takata, Kazunari Domen

A Na-containing Pt cocatalyst for efficient visible-light-induced hydrogen evolution on BaTaO₂N. Journal of Materials Chemistry A, 9, 24, 13851–13854, 2021.

DOI:10.1039/d1ta01162f

Haixin Mai, Tu C. Le, Takashi Hisatomi, Dehong Chen, Kazunari Domen, David A. Winkler, Rachel A. Caruso

Use of meta models for rapid discovery of narrow bandgap oxide photocatalysts. iScience, 24, 9, 103068, 2021.

DOI:10.1016/j.isci.2021.103068

Vikas Nandal, Yuriy Pihosh, Tomohiro Higashi, Tsutomu Minegishi, Taro Yamada, Kazuhiko Seki, Masakazu Sugiyama, Kazunari Domen

Probing fundamental losses in nanostructured Ta₃N₅ photoanodes: design principles for efficient water oxidation. Energy and Environmental Science, 14, 4038–4047, 2021.

Vikas Nandal, Ryota Shoji, Hiroyuki Matsuzaki, Akihiro Furube, Lihua Lin, Takashi Hisatomi, Masanori Kaneko, Koichi Yamashita, Kazunari Domen, Kazuhiko Seki

Unveiling charge dynamics of visible light absorbing oxysulfide for efficient overall water splitting. Nature Communications, 12, 1, 7005, 2021.

DOI:10.1038/s41467-021-27199-3

Hiroshi Nishiyama, Taro Yamada, Mamiko Nakabayashi, Yoshiki Maehara, Masaharu Yamaguchi, Yasuko Kuromiya, Yoshie Nagatsuma, Hiromasa Tokudome, Seiji Akiyama, Tomoaki Watanabe, Ryoichi Narushima, Sayuri Okunaka, Naoya Shibata, Tsuyoshi Takata, Takashi Hisatomi, Kazunari Domen

Photocatalytic solar hydrogen production from water on a 100-m² scale. Nature, 598, 7880, 304–307, 2021.

DOI:10.1038/s41586-021-03907-3

Zhenhua Pan, Qi Xiao, Shanshan Chen, Zheng Wang, Lihua Lin, Mamiko Nakabayashi, Naoya Shibata, Tsuyoshi Takata, Takashi Hisatomi, Kazunari Domen

Synthesis of a Ga-doped La₅Ti₂Cu_{0.9}Ag_{0.1}O₇S₅ photocatalyst by thermal sulfidation for hydrogen evolution under visible light. Journal of Catalysis, 399, 230–236, 2021.

DOI:10.1016/j.jcat.2021.05.015

Yu Qi, Jiangwei Zhang, Yuan Kong, Yue Zhao, Shanshan Chen, Deng Li, Wei Liu, Yifan Chen, Tengfeng Xie, Junyan Cui, Can Li, Kazunari Domen, Fuxiang Zhang

Unraveling of cocatalysts photodeposited selectively on facets of BiVO₄ to boost solar water splitting. Nature

Communications, 13, 484, 2022.

DOI:10.1038/s41467-022-28146-6

Shwetharani Ramu, Takashi Hisatomi, Kazunari Domen

Oxygen evolution activity of LaNbN₂O-based photocatalysts obtained from nitridation of a precursor oxide structurally modified by incorporating volatile elements. *Catalysts*, 11, 5, 566, 2021.

DOI:10.3390/catal11050566

Fumiaki Takagi, Yosuke Kageshima, Katsuya Teshima, Kazunari Domen, Hiromasa Nishikiori

Enhanced photoelectrochemical performance from particulate ZnSe:Cu(In, Ga)Se₂ photocathodes during solar hydrogen production *via* particle size control. *Sustainable Energy & Fuels*, 5, 2, 412-423, 2021.

DOI:10.1039/d0se00998a

Fumiaki Takagi, Suzuna Taguchi, Yosuke Kageshima, Katsuya Teshima, Kazunari Domen, Hiromasa Nishikiori

Accelerated photoelectrochemical oxygen evolution over a BaTaO₂N photoanode modified with cobalt-phosphate-loaded TiO₂ nanoparticles. *Applied Physics Letters*, 119, 12, 123902, 2021.

DOI:10.1063/5.0061729

Shuying Wang, Kentaro Teramura, Takashi Hisatomi, Kazunari Domen, Hiroyuki Asakura, Saburo Hosokawa, Tsunehiro Tanaka

Highly selective photocatalytic conversion of carbon dioxide by water over Al-SrTiO₃ photocatalyst modified with silver-metal dual cocatalysts. *ACS Sustainable Chemistry & Engineering*, 9, 28, 9327-9335, 2021.

DOI:10.1021/acssuschemeng.1c02126

Jiadong Xiao, Junie Jhon M. Vequizo, Takashi Hisatomi, Jabor Rabeah, Mamiko Nakabayashi, Zheng Wang, Qi Xiao, Huihui Li, Zhenhua Pan, Mary Krause, Nick Yin, Gordon Smith, Naoya Shibata, Angelika Brückner, Akira Yamakata, Tsuyoshi Takata, Kazunari Domen

Simultaneously tuning the defects and surface properties of Ta₃N₅ nanoparticles by Mg-Zr codoping for significantly accelerated photocatalytic H₂ evolution. *Journal of the American Chemical Society*, 143, 27, 10059-10064, 2021.

DOI:10.1021/jacs.1c04861

Qi Xiao, Jiadong Xiao, Junie Jhon M. Vequizo, Takashi Hisatomi, Mamiko Nakabayashi, Shanshan Chen, Zhenhua Pan, Lihua Lin, Naoya Shibata, Akira Yamakata, Tsuyoshi Takata, Kazunari Domen

Cocatalyst engineering on a narrow bandgap Ga-La₅Ti₂Cu_{0.9}Ag_{0.1}O₇S₅ photocatalyst towards effectively enhanced water splitting. *Journal of Materials Chemistry A*, 9, 48, 27485-27492, 2021.

DOI:10.1039/d1ta08770c

H. S. Cho, H. Tanaka, Y. Lee, Y.-B. Zhang, J. Jiang, M. Kim, H. Kim, J. K. Kang, O. Terasaki

Physicochemical Understanding of the Impact of Pore Environment and Species of Adsorbates on Adsorption Behaviour. *Angew. Chem. Int. Ed.*, 60, 37, 20504-20510, 2021.

DOI:10.1002/anie.202107897

S. Hiraide, H. Arima, H. Tanaka, M. T. Miyahara

Slacking of Gate Adsorption Behavior on Metal-Organic Frameworks under an External Force. *ACS Appl. Mater. Interfaces*, 13, 25, 30213-30223, 2021.

DOI:10.1021/acsmi.1c07370

A. Gabe, M. Ouzzine, E. E. Taylor, N. P. Stadie, N. Uchiyama, T. Kanai, Yuta Nishina, H. Tanaka, Z.-Z. Pan, T. Kyotani, H. Nishihara

High-density monolithic pellets of double-sided graphene fragments based on zeolite-templated carbon. *J. Mater. Chem. A*, 9, 12, 7503-7507, 2021.

DOI:10.1039/d0ta11625d

- Shannon McGee, Yu Lei, James Goff, Collin J. Wilkinson, Nabila Nabi Nova, Cody Matthew Kindle, Fu Zhang, Kazunori Fujisawa, Edgar Dimitrov, Susan B. Sinnott, Ismaila Dabo, Mauricio Terrones, Lauren D. Zarzar
Single-Step Direct Laser Writing of Multimetal Oxygen Evolution Catalysts from Liquid Precursors. *ACS Nano*, 15, 6, 9796–9807, 2021.
DOI:10.1021/acsnano.1c00650
- Rafael N Gontijo, Tianyi Zhang, Kazunori Fujisawa, Ana Laura Elias, Marcos A. Pimenta, Ariete Righi, Mauricio Terrones, Cristiano Fantini
Multiple excitations and temperature study of the disorder-induced Raman bands in MoS₂. *2D Mater.* 8, 3, 035042, 2021.
DOI:10.1088/2053-1583/ac0170
- Mieko Takasaka, Shinsuke Kobayashi, Yuki Usui, Hisao Haniu, Shuji Tsuruoka, Kaoru Aoki, Naoto Saito
Biokinetic Evaluation of Contrast Media Loaded Carbon Nanotubes Using a Radiographic Device. *Topics*, 9, 12, 331, 2021.
DOI:10.3390/toxics9120331
- Toru Noguchi, Yasuo Bamba, Takashi Miura, Rie Iwamoto, Morinobu Endo, Akira Isogai
Cellulose-Nanofiber-Reinforced Rubber Composites with Resorcinol Resin Prepared by Elastic Kneading. *Macromolecular Materials and Engineering*, 306, 12, 2021.
DOI:10.1002/mame.202100483
- Toru Noguchi, Kenichi Niihara, Ayumi Kurashima, Rie Iwamoto, Takashi Miura, Akira Koyama, Morinobu Endo, Hironori Marubayashi, Akemi Kumagai, Hiroshi Jinnai, Akira Isogai
Cellulose nanofiber-reinforced rubber composites prepared by TEMPO-functionalization and elastic kneading. *Composites Science and Technology*, 210, 2021.
DOI:10.1016/j.compscitech.2021.108815
- Toru Noguchi, Kenichi Niihara, Rie Iwamoto, Gen-ichi Matsuda, Morinobu Endo, Akira Isogai
Nanocellulose/polyethylene nanocomposite sheets prepared from an oven-dried nanocellulose by elastic kneading. *Composites Science and Technology*, 207, 2021.
DOI: 10.1016/j.compscitech.2021.108734

特任教員 等

- Keisuke Kojima, Naoki Sunagawa, Yoshihisa Yoshimi, Theodora Tryfona, Masahiro Samejima, Paul Dupree, Kiyohiko Igarashi
Acetylated Xylan Degradation by Glycoside Hydrolase Family 10 and 11 Xylanases from the White-rot Fungus *Phanerochaete chrysosporium*. *J. Appl. Glycosci.*, 69, 2, 35–43, 2022.
DOI: 10.5458/jag.jag.JAG-2021_0017
- Keisuke Kojima, Naoki Sunagawa, Nils Egil Mikkelsen, Henrik Hansson, Saeid Karkehabadi, Masahiro Samejima, Mats Sandgren, Kiyohiko Igarashi
Comparison of glycoside hydrolase family 3 beta-xylosidases from basidiomycetes and ascomycetes reveals evolutionarily distinct xylan degradation systems. *J. Biol. Chem.*, 298, 3, 101670, 2022.
DOI: 10.1016/j.jbc.2022.101670
- Gento Ishikawa, Tsubasa Tsuji, Satomi Tagawa, Tetsuo Kondo
Adsorption of Janus-Type Amphiphilic Cellulose Nanofibrils onto Microspheres of Semicrystalline Polymers. *Macromolecules*, 54, 20, 9393–9400, 2021.
- Ryo Takahama, Honami Kato, Kenji Tajima, Satomi Tagawa, Tetsuo Kondo

Biofabrication of a Hyaluronan/Bacterial Cellulose Composite Nanofibril by Secretion from Engineered *Gluconacetobacter*. *Biomacromolecules*, 22, 11, 4709–4719, 2021.

Daisuke Tanaka, Solvi Arnold, Kimitoshi Yamazaki

Disruption-resistant deformable object manipulation on basis of online shape estimation and prediction-driven trajectory correction. *IEEE robotics and automation letters*, 6, 2, 3809–3816, 2021.

DOI:10.1109/LRA.2021.3060679

Mitsuhide Sato, Takumi Maezawa, Masashi Ueda, Yinggang Bu, Tsutomu Mizuno

Reduced Heat in Radiated Electromagnetic-Field Suppression Case for Wireless Power Transmission using a Magnetic Composite Sheet. *IEEE Transactions on Electromagnetic Compatibility*, 64, 1, 1–9, 2022.

DOI:10.1109/TEMC.2021.3135937

Manabu Horiuchi, Ryoken Masuda, Yinggang Bu, Masami Nirei, Mitsuhide Sato, Tsutomu Mizuno

Effect of Magnetic Wedge Characteristics on Torque Ripple and Loss in Interior Permanent Magnet Synchronous Motor. *IEEJ Journal of Industry Applications*, 11, 1, 49–58, 2022.

DOI:10.1541/ieejia.21002574

Takumi Maezawa, Hao Zhou, Mitsuhide Sato, Yinggang Bu, Tsutomu Mizuno

Low Loss on a Litz Aluminum Wire Coil Using Magnetic Tape for Automotive Wireless Power Transmission. *IEEE transactions on Magnetics*, 57, 9, 8700307, 1–7, 2021.

DOI:10.1109/TMAG.2021.3097880

Mitsuhide Sato, Yusuke Hattori, Masashi Ueda, Yinggang Bu, Tsutomu Mizuno

Improved Performance of a Flat-Wire Coil with Magnetic Composite Material for Wireless Power Transfer. *IEEE Magnetics Letters*, 12, 8101105, 1–5, 2021.

佐藤光秀, 鈴木 樹, 増田良健, 堀内 学, 高沢溪吾, ト 穎剛, 水野 勉, 楡井雅巳

空間高調波低減のための磁性コンポジットリングを利用した埋込巻線形モータ. *日本AEM学会誌*, 29, 2, 275–280, 2021.

2. 国際会議プロシーディング

電子情報システム工学科

Darrell Whitley, Fernando Chicano, Hernán Aguirre

Quadratization of gray coded representations, long path problems and needle functions. 2021 Genetic and Evolutionary Computation Conference (GECCO 2021), 644–651, 2021, France, Web.

Hitoshi Kiryu, Shinpei Ogata, Kozo Okano

Verification of shell script behavior by comparing execution log. *Proceedings of International Workshop on Informatics 2021 (IWIN2021)*, 2021.

Ryosuke Tsutsumi, JiuJun Wei, Shinpei Ogata, Masaaki Niimura, Kozo Okano

Software edutainment systems and analysis of learners' data based docker and edutainment. *Proceedings of International Workshop on Informatics 2021 (IWIN2021)*, 2021.

Masanosuke Ohto, Hiroya Ii, Kozo Okano, Shinpei Ogata

Proposal of extracting state variables and values from requirement specifications in Japanese by using dependency analysis. *Proceedings of the 25th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems*, 1649–1657, 2021.

Ryoga Maruyama, Mizue Kayama, Takashi Nagai, Otaku Koki, Naomi Taguchi