

	分析部門の分析機器を使用して2022年度に発表された研究論文 65編 65 Research papers published in FY 2022 using equipments in Chemical Analysis Division	論文で使用された機器 the equipment used in research paper
1	Kotchaporn Thangunpai, Donghao Hu, Xianlong Su, Mikio Kajiyama, Marcos A. Neves and Toshiharu Enomae, "Thermal Stability of Polycaprolactone Grafted Densely with Maleic Anhydride Analysed Using the Coats-Redfern Equation", <i>Polymers</i> , 14(19), 4100 (2022); DOI: 10.3390/polym14194100	熱分析装置 Thermal Analyzer
2	Peifu Kong, Junichi Peter Abe, Akiko Nakagawa-izumi, Mikio Kajiyama, Toshiharu Enomae "Preparation of an eco-friendly antibacterial agent for food packaging containing Houttuynia cordata Thunb. extract", <i>RSC Advances</i> 12, 16141-16152 (2022) DOI: 10.1039/D2RA02178A	FT-IR, GC-MS
3	Kang Lee, Michel Sablier, Toshiharu Enomae, Masamitsu Inaba "Evaluation of Degradation of Japanese Hanging Scrolls Using Relative Peak Area of Volatile Organic Compounds", <i>Studies in Conservation</i> (2022) DOI: 10.1080/00393630.2022.2049033	GC-MS
4	Takuya Yonehara, Kyoka Komaba, Hiromasa Goto, Optically active polymer charge-transfer complex as a form of charge-transfer chiralions, <i>Journal of Polymer Science</i> , 61, 604-612 (2023).	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
5	Kyoka Komaba, Tomoaki Jo & Hiromasa Goto, Preparation of helical liquid crystal electrolyte with L-isoleucine derivatives and molecular asymmetric imprinting polymerization in liquid crystal to produce electro-optically coloration active polymers having chiral charge carrier chiralions, <i>Molecular Crystals and Liquid Crystals</i> , 757, 1-12 (2023) <a href="https://doi.org/10.1080/15421406.2022.2129288">https://doi.org/10.1080/15421406.2022.2129288</a>	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
6	Mai Ichikawa, Masashi Otaki, Hiromasa Goto. Polyaniline Hybrids with Biological Tissue, and Biological Polymers as Physiological—Electroactive Materials. <i>Micro</i> , 3, 172-191, 2023. <a href="https://doi.org/10.3390/micro3010013">https://doi.org/10.3390/micro3010013</a>	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
7	Kyoka Komaba, Hiromasa Goto, Synthesis of Polyaniline and Polyaniline/Fiber Composites in Geothermal Water, <i>Journal of Water Chemistry and Technology</i> , Vol. 45, No. 1, pp. 52-62. (2023)	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
8	Masashi Otaki, Hiromasa Goto, Electrochromism of Main-Chain Polyazobenzenes Synthesized in Liquid Crystal Template and Its Orientation Behavior, <i>Chem Select</i> , 7, e202200041 2023 <a href="https://doi.org/10.1002/slct.202200041">https://doi.org/10.1002/slct.202200041</a>	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
9	Ryo Miyashita, Hiromasa Goto, Magnetochemical polymerization of bithiophene in liquid crystal and linear polarized optical switching of polaron, <i>Molecular Crystals and Liquid Crystals</i> , 2022. <a href="https://doi.org/10.1080/15421406.2022.2078545">https://doi.org/10.1080/15421406.2022.2078545</a>	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
10	Hiromasa Goto, Reaction field induction self-amplification optical activity during polymerization in liquid crystal, <i>Molecular Crystals and Liquid Crystals</i> , 745, 26-39 (2023). DOI: 10.1080/15421406.2022.2073421	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
11	Hiromasa Goto, Kyoka Komaba, Takuya Yonehara, Ryo Miyashita, Reiji Kumai, Synthesis of polyaniline in organic solvents, <i>Journal: Polymer-Plastics Technology and Materials</i> . 61, 1593-1606 (2023) <a href="https://doi.org/10.1080/25740881.2022.2075270">https://doi.org/10.1080/25740881.2022.2075270</a>	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
12	Ryo Miyashita, Hiromasa Goto, Preparation of polyaniline with carboxylic acids and electron spin resonance, <i>Polymer-Plastics Technology and Materials</i> , accepted., VOL. 61, NO. 12, 1292-1297. (2022) <a href="https://doi.org/10.1080/25740881.2022.2056052">https://doi.org/10.1080/25740881.2022.2056052</a> Published online: 03 Apr	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
13	Hiromasa Goto, Polymerization in centrifugally oriented liquid crystal reaction field, <i>Molecular Crystals and Liquid Crystals</i> , 2023. <a href="https://doi.org/10.1080/15421406.2023.2165328">https://doi.org/10.1080/15421406.2023.2165328</a>	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
14	Hiromasa Goto, 3D Variable Range Hopping Electrical Conduction of a Carbon from Polyaniline Vapor, <i>C-Journal of Carbon Research</i> , 2023, 9, 9. <a href="https://doi.org/10.3390/c9010009">https://doi.org/10.3390/c9010009</a>	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
15	Yusuke Koshikawa, Ryo Miyashita, Hiromasa Goto, Metallic Emerald: Magnetic Measurements of Nanocarbons/Polyaniline and Preparation of Plastic Composites, <i>C journal of Carbon Research</i> , 22, 60-70, 2023. <a href="https://doi.org/10.3390/c8040060">https://doi.org/10.3390/c8040060</a>	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
16	Kyoka Komaba, Hiromasa Goto, Hydroxypropyl cellulose/poly(aniline-co-pyridine-oid) as a liquid crystal polymer/polyradical blend with helical magnetic structure, <i>Polymer-Plastics Technology and Materials</i> , 61, 751-760, (2022). 10.1080/25740881.2021.2015780. Published online: 17 Jan 2022	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;

	分析部門の分析機器を使用して2022年度に発表された研究論文 65編 65 Research papers published in FY 2022 using equipments in Chemical Analysis Division	論文で使用された機器 the equipment used in research paper
17	Ryo Miyashita, Hiromasa Goto, Preparation of a stable twist grain boundary A (TGBA*) phase and blue phase liquid crystal with ternary system blend, <i>Soft Materials</i> , 20, 322-328 (2022) <a href="https://doi.org/10.1080/1539445X.2022.2032152">https://doi.org/10.1080/1539445X.2022.2032152</a>	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
18	Ryo Miyashita, Shigeki Nimori, Hiromasa Goto, Optical rotation controllable atropisomer polythiophenes prepared in liquid crystals <i>Molecular Crystals and Liquid Crystals</i> , 739, 56-64 (2022). <a href="https://doi.org/10.1080/15421406.2022.2026661">https://doi.org/10.1080/15421406.2022.2026661</a>	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
19	Ryo Miyashita, Hiromasa Goto, Electro-Magneto-Optically Active Polyaniline/Hydroxypropyl Cellulose Composite, <i>ACS Applied Polymer Materials</i> , 4 (2)796-805 (2022). <a href="https://doi.org/10.1021/acsapm.1c01129">10.1021/acsapm.1c01129</a>	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
20	Kyoka Komaba, Hiromasa Goto, An Attempt of Migita-Kosugi-Stille Type Polycondensation at Room Temperature, <i>Futurum</i> , 5,71-74 (2022)	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
21	Kyoka Komaba, Nobuhiko Nomura, & Hiromasa Goto, Electrochemical Polymerization in a Biological Communication Material, <i>International Journal of Polymeric Materials and Polymeric Biomaterials</i> , 71(2), 148-154. <a href="https://doi.org/10.1080/00914037.2020.1809408">10.1080/00914037.2020.1809408</a> (2022) <a href="http://purl.org/coar/resource_type/c_6501">http://purl.org/coar/resource_type/c_6501</a>	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
22	Kyoka Komaba, Reiji Kumai, Hiromasa Goto, Fiber-regeneration Reaction Field Polymerization (FRFP) for Preparation of Polyaniline Composites. <i>Polymer-Plastics Technology and Materials</i> , 61(1), 69-78. (2022) DOI: <a href="https://doi.org/10.1080/25740881.2021.1953527">10.1080/25740881.2021.1953527</a>	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
23	Mai Ichikawa, Ryo Miyashita, Hiromasa Goto. Bach type polycondensation with an aid of hemoglobin as an oxygen supplier, and synthetic/bio-composite. <i>J Compos Sci.</i> 6, 217-225, 2022. <a href="https://doi.org/10.3390/jcs6080217">https://doi.org/10.3390/jcs6080217</a>	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
24	Akihiro Ninomiya, Syun-ichi Urayama & Daisuke Hagiwara, Antibacterial diphenyl ether production induced by co-culture of <i>Aspergillus nidulans</i> and <i>Aspergillus fumigatus</i> . <i>Appl Microbiol Biotechnol.</i> 106(11):4169-4185. 2022. doi: <a href="https://doi.org/10.1007/s00253-022-11964-5">10.1007/s00253-022-11964-5</a> . Epub 2022 May 21. PMID: 35595930.	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;核磁気共鳴装置(NMR500) Nuclear Magnetic Resonance Spectrometer AVANCE-500;核磁気共鳴装置(NMR600) Nuclear Magnetic Resonance Spectrometer 600;ESI型質量分析装置(LC-MS) Liquid Chromatography Mass Spectrometry;
25	H. Fujisaki, T. Ishizuka, H. Kotani, Y. Shiota, K. Yoshizawa, T. Kojima, "Selective Methane Oxidation by Molecular Iron Catalysts in Aqueous Medium", <i>Nature</i> 616, 476-481 (2023)	高輝度単結晶自動X線回折装置 High-Intensity Single-Crystal X-Ray Diffractometer APEXII ULTRA;
26	Aimi A. H. Tajuddin, Mitsuru Wakisaka, Tatsuhiko Ohto, Yue Yu, Haruki Fukushima, Hisanori Tanimoto, Xiaoguang Li, Yoshitatsu Misu, Samuel Jeong, Jun-ichi Fujita, Hirokazu Tada, Takeshi Fujita, Masaki Takeguchi, Kaori Takano, Koji Matsuoka, Yasushi Sato, Yoshikazu Ito, Corrosion-Resistant and High-Entropic Non-Noble-Metal Electrodes for Oxygen Evolution in Acidic Media, <i>Advanced Materials</i> , <a href="https://onlinelibrary.wiley.com/doi/full/10.1002/adma.202207466">https://onlinelibrary.wiley.com/doi/full/10.1002/adma.202207466</a>	比表面積・細孔分布測定装置 Surface Area And Pore Size Analyzer SA-3100;プラズマ発光分光分析装置(ICP-8100) Plasma Emission Spectrometer ICPS-8100;
27	Nagayama T, Tatsumi A, Nakamura A, Yamaji N, Satoh S, Furukawa J, Iwai H. Effects of polygalacturonase overexpression on pectin distribution in the elongation zones of roots under aluminium stress. <i>AoB Plants</i> .14(2):plac003., 2022 Feb 23 doi: <a href="https://doi.org/10.1093/aobpla/plac003">10.1093/aobpla/plac003</a> . PMID: 35356145; PMCID: PMC8963292.	プラズマ発光分光分析装置(ICP-8100) Plasma Emission Spectrometer ICPS-8100;
28	Takayuki Ohyoshi, Atsuhiko Takano, Imari Kikuchi, Tomotaka Ogura, Mayu Namiki, Yuto Miyazaki, Takahiro Hirano, Shota Konishi, Yuta Ebihara, Koichi Takeno, Ichiro Hayakawa, and Hideo Kigoshi Structure-Activity Relationship Studies on an Antitumor Marine Macrolide Using Aplyronine A-Swinholide A Hybrid Org. <i>Biomol. Chem.</i> , 20 (14), 2922-2938 (2022) DOI: <a href="https://doi.org/10.1039/d2ob00118g">10.1039/d2ob00118g</a>	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;核磁気共鳴装置(NMR500) Nuclear Magnetic Resonance Spectrometer AVANCE-500;核磁気共鳴装置(NMR600) Nuclear Magnetic Resonance Spectrometer 600;旋光計 Polarimeter P-2200;フーリエ変換赤外分光光度計 Fourier Transform Infrared Spectrophotometer;

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29	Masahito Yoshida, Tomoya Matsushita, Shinji Kondo, Hiroko Isoda, and Hideo Kigoshi Structure Revision of Trichomide D by Total Synthesis, <i>J. Nat. Prod.</i> , 85 (7), 1850-1860 (2022) DOI:10.1021/acs.jnatprod.2c00440	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;核磁気共鳴装置(NMR500) Nuclear Magnetic Resonance Spectrometer AVANCE-500;核磁気共鳴装置(NMR600) Nuclear Magnetic Resonance Spectrometer 600;フーリエ変換赤外分光光度計 Fourier Transform Infrared Spectrophotometer;旋光計 Polarimeter P-2200;
30	Keisuke Mitsugi, Toru Takabayashi, Takayuki Ohyoshi, and Hideo Kigoshi Total Synthesis of a PPAP, Nemorosonol, Using a Tandem Michael Addition-Intramolecular Aldol Reaction <i>Org. Lett.</i> , 24 (25), 4635-4639 (2022) DOI:10.1021/acs.orglett.2c01745	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;核磁気共鳴装置(NMR500) Nuclear Magnetic Resonance Spectrometer AVANCE-500;核磁気共鳴装置(NMR600) Nuclear Magnetic Resonance Spectrometer 600;フーリエ変換赤外分光光度計 Fourier Transform Infrared Spectrophotometer;
31	Takayuki Ohyoshi, Yiwen Zhao, and Hideo Kigoshi: Isolation and Synthesis of Azuriaplysins A and B, Bromoditerpenes with an - - Methylene Carbonyl From the Sea Hare <i>Aplysia kurodai</i> , <i>J. Nat. Prod.</i> , 85 (8), 2082-2089 (2022). DOI:10.1021/acs.jnatprod.2c00476	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;核磁気共鳴装置(NMR500) Nuclear Magnetic Resonance Spectrometer AVANCE-500;核磁気共鳴装置(NMR600) Nuclear Magnetic Resonance Spectrometer 600;フーリエ変換赤外分光光度計 Fourier Transform Infrared Spectrophotometer;旋光計 Polarimeter P-2200;高輝度単結晶自動X線回折装置 High-Intensity Single-Crystal X-Ray Diffractometer APEXII ULTRA;
32	Takayuki Ohyoshi, Yiwen Zhao, Kei Akemoto, Takuma Ishihara, Ayaka Taniguchi, Menghua Zhang, and Hideo Kigoshi : Bioinspired Total Synthesis and Structure-Activity Relationship Studies on Aplaminal, <i>Bull. Chem. Soc. Jpn.</i> , 95 (8), 1242-1249 (2022). DOI:10.1246/bcsj.20220149	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;核磁気共鳴装置(NMR500) Nuclear Magnetic Resonance Spectrometer AVANCE-500;核磁気共鳴装置(NMR600) Nuclear Magnetic Resonance Spectrometer 600;フーリエ変換赤外分光光度計 Fourier Transform Infrared Spectrophotometer;旋光計 Polarimeter P-2200;
33	Norinobu Watanabe, Keisuke Miyazaki, Masayuki Toyoda, Kotaro Takeyasu, Naohito Tsujii, Haruki Kusaka, Akiyasu Yamamoto, Susumu Saito, Masashi Miyakawa, Takashi Taniguchi, Takashi Aizawa, Takao Mori, Masahiro Miyauchi*, Takahiro Kondo* <i>Rhombohedral Boron Monosulfide as a p-Type Semiconductor Molecules</i> 28 1896. (9 pages) (2023)	電子プローブマイクロアナライザー(EPMA) Electron Probe Microanalyzer JXA-8530F(EPMA);
34	Yusuke Onose, Yuri Ito, Junpei Kuwabara, and Takaki Kanbara, "Tracking side reactions of the inverse vulcanization process and developing monomer selection guidelines" <i>Polym. Chem.</i> 13, 5486-5493 (2022).	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;核磁気共鳴装置(NMR600) Nuclear Magnetic Resonance Spectrometer 600;
35	Ryota Sato, Tomoki Iida, Takaki Kanbara, and Junpei Kuwabara, "Unusual Regioselectivity of Pd-Catalysed Cross-Dehydrogenative Coupling Reaction of Simple Polyaromatic Hydrocarbons with Polyfluoroarenes" <i>Chem. Commun.</i> , 58, 11511-11514 (2022).	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;核磁気共鳴装置(NMR600) Nuclear Magnetic Resonance Spectrometer 600;高輝度単結晶自動X線回折装置 High-Intensity Single-Crystal X-Ray Diffractometer APEXII ULTRA;
36	Naoki Onda, Ryota Sato, Junpei Kuwabara, Takeshi Yasuda, and Takaki Kanbara, "One-pot two-step cross-dehydrogenative-coupling polycondensation for synthesis of tetrafluorobenzene-based conjugated polymer" <i>Synthetic Metals</i> , 293, 117279 (5 page) (2023).	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;核磁気共鳴装置(NMR600) Nuclear Magnetic Resonance Spectrometer 600;MALDI型質量分析装置 MALDI Mass Spectrometer TOF/TOF (TM) 5800system;

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37	Junpei Kuwabara, Kota Hiyaji, Shuyang Guo, Xin Jiang, Takeshi Yasuda, and Takaki Kanbara, "Direct Arylation Polycondensation for Synthesis of Medium-Bandgap Polymer Donors (PBDB-T) for Organic Photovoltaics" Polym. J., 55, 395–404 (2023).	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;核磁気共鳴装置(NMR600) Nuclear Magnetic Resonance Spectrometer 600;MALDI型質量分析装置 MALDI Mass Spectrometer TOF/TOF (TM) 5800system;
38	Ryota Sato, Takeshi Yasuda, Takanobu Hiroto, Takaki Kanbara, and Junpei Kuwabara, "Facile synthesis of bis-pentafluoroarylated anthracene derivatives for n-type organic field-effect transistor applications" Chem.Eur.J., 29, e202203816 (5 pages). (2023)	核磁気共鳴装置(NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;核磁気共鳴装置(NMR600) Nuclear Magnetic Resonance Spectrometer 600;
39	Gen-ichiro Yamamoto, Atsushi Kyono, Satoru Okada Thermal decomposition process of dypingite $Mg_5(CO_3)_4(OH)_2 \cdot 5H_2O$ . Materials Letters, 308, 131125, 2022.	熱分析装置 Thermal Analyzer;
40	Atsushi Kyono, Ryutaro Ikeda, Sota Takagi, and Wataru Nishiyasu Structural evolution of gypsum ( $CaSO_4 \cdot 2H_2O$ ) during thermal dehydration Journal of Mineralogical and Petrological Sciences, 117, 220811 (2022)	熱分析装置 Thermal Analyzer;
41	Takuya Shiga,* Haruka Miyamoto, Yukiko Okamoto, Hiroki Oshio, Nozomi Mihara. Masayuki Nihei*, "Tetranuclear $[Cu_3Ln]$ complexes derived from a tetraketone-type ligand", Dalton Trans., 52, 3947-3953, 2023. (Front cover picture)	MALDI型質量分析装置 MALDI Mass Spectrometer TOF/TOF (TM) 5800system;有機元素分析装置 Organic Element Analysis;核磁気共鳴装置 (NMR400) Nuclear Magnetic Resonance Spectrometer JNM-ECS-400;
42	A. Miyagawa, R. Ide, S. Nagatomo, K. Nakatani, Distribution Behavior of Single-Stranded DNA Molecules in an Amino Group-Functionalized Silica Microparticle, Langmuir, 38, 8462-8468, 2022	共焦点蛍光顕微鏡 Confocal Laser Scanning Microscope FLUOVIEW FV1000-D;
43	A. Miyagawa, Y. Kusano, R. Nakagawa, S. Nagatomo, Y. Sano, K. Nakatani, Kinetically Revealed Transfer Mechanism of Europium (III) in Tributyl Phosphate Microdroplet/ $NaNO_3$ Aqueous Solution System by Fluorescence Microspectroscopy, J. Mol. Liq., 352, 118757, 2022	蛍光分光光度計 Fluorescence Spectrophotometer F-4500;プラズマ発光分光分析装置(ICP-8100) Plasma Emission Spectrometer ICPS-8100;
44	A. Miyagawa, Y. Kusano, S. Nagatomo, Y. Sano, K. Nakatani, Kinetics and Mechanism of Eu(III) Transfer in Tributyl Phosphate Microdroplet/ $HNO_3$ Aqueous Solution System Revealed by Fluorescence Microspectroscopy, Anal. Sci., 38, 955-961, 2022	プラズマ発光分光分析装置(ICP-8100) Plasma Emission Spectrometer ICPS-8100;蛍光分光光度計 Fluorescence Spectrophotometer F-4500;
45	Yamamoto, Y.; Momotake A. Structures and Catalytic Activities of Complexes Between Heme and DNA. In Handbook of Chemical Biology of Nucleic Acids; Springer Nature Singapore: Singapore, pp 1–38. (2022)	核磁気共鳴装置(NMR600) Nuclear Magnetic Resonance Spectrometer 600;
46	Homma, S.; Momotake, A.; Ikeue, T.; Yamamoto Y. A Photochemical Study of Photo-Induced Electron Transfer from DNAs to a Cationic Phthalocyanine Derivative. J. Fluoresc., 1, 1–9. (2023)	核磁気共鳴装置(NMR600) Nuclear Magnetic Resonance Spectrometer 600;
47	Takayuki Shibata, Kota Nakamura, Shu Nozaki, Hiroki Iwaizumi, Hitoshi Ohnuki, Yutaka Moritomo Optimization of electrode parameters of $Na_xCo[Fe(CN)_6]_{0.88}/Na_xCd[Fe(CN)_6]_{0.99}$ tertiary battery Sustainable Materials and Technologies 33 (2022) e00483	有機元素分析装置 Organic Element Analysis;
48	Arnold Hendharto Widdhiarta, Yousuke Shimauro, Ichiro Nagai, Takayuki Shibata, Yutaka Moritomo Thermo-rechargeable Batteries Fabricated Using Low-cost Materials Journal of Energy and Power Technology 4(1),2022 doi:10.21926/jept.2201011	有機元素分析装置 Organic Element Analysis;
49	Yusuke Chiba, Hiroki Fujii, Takashi Nakamura, Tatsuya Nabeshima "Coordination-Driven Synthesis of a Self-Assembled Architecture Bearing Urea Groups from a Triply Helical Fe(II) Complex of a Tripodal Ligand and a Pd(II) Complex". Chem. Lett., 51, 1128–1130 (2022). DOI: 10.1246/cl.220408	MALDI型質量分析装置 MALDI Mass Spectrometer TOF/TOF (TM) 5800system;
50	T. Sampei, Y. Wu, and H. Shigemori Amyloid polypeptide disaggregation activity of passion-fruit-seed-derived polyphenol compounds, Nat. Prod. Commun., 17, 1-9 (2022).	核磁気共鳴装置(NMR500) Nuclear Magnetic Resonance Spectrometer AVANCE-500;核磁気共鳴装置(NMR600) Nuclear Magnetic Resonance Spectrometer 600;MALDI型質量分析装置 MALDI Mass Spectrometer TOF/TOF (TM) 5800system;

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51	Hu, X.K., Zhang, S.T., Tsunogae, T., Tang, L., Li, W.J., Sheng, Y.M., and Feng, J.Y. Genesis and magmatic-hydrothermal evolution of the Shapoling Mo deposit, East Qinling, China: Insights from geochronology, petrogenesis and fluid evolution. <i>Ore Geology Reviews</i> , 143, 104789, 1-17 (2022)	電子プローブマイクロアナライザー(EPMA) Electron Probe Microanalyzer JXA-8530F(EPMA);
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63	Haruma T, Doyama K, Lu X, Arima T, Igarashi T, Tomiyama S, Yamaji K. Oosporein Produced by Root Endophytic <i>Chaetomium cupreum</i> Promotes the Growth of Host Plant, <i>Miscanthus sinensis</i> , under Aluminum Stress at the Appropriate Concentration. <i>Plant</i> 12(36):1 (2022)	有機元素分析装置 Organic Element Analysis;核磁気共鳴装置(NMR600) Nuclear Magnetic Resonance Spectrometer 600;核磁気共鳴装置(NMR500) Nuclear Magnetic Resonance Spectrometer AVANCE-500;プラズマ発光分光分析装置(ICP-7300) Plasma Emission Spectrometer Optima 7300DV;旋光計 Polarimeter P-2200;共焦点蛍光顕微鏡 Confocal Laser Scanning Microscope FLUOVIEW FV1000-D;ガスクロマトグラフ質量分析装置 Gas Chromatograph-Mass Spectrometer GCMS-QP2010 Plus;
64	Haruma T., Doyama K., Lu X., Arima T., Igarashi T., Tomiyama S., Yamaji K. Oosporein produced by root endophytic <i>Chaetomium cupreum</i> promotes the growth of host plant, <i>Miscanthus sinensis</i> , under aluminum stress at the appropriate concentration. <i>Plants</i> 12: 36. (2023)	有機元素分析装置 Organic Element Analysis;核磁気共鳴装置(NMR600) Nuclear Magnetic Resonance Spectrometer 600;核磁気共鳴装置(NMR500) Nuclear Magnetic Resonance Spectrometer AVANCE-500;プラズマ発光分光分析装置(ICP-7300) Plasma Emission Spectrometer Optima 7300DV;旋光計 Polarimeter P-2200;共焦点蛍光顕微鏡 Confocal Laser Scanning Microscope FLUOVIEW FV1000-D;ガスクロマトグラフ質量分析装置 Gas Chromatograph-Mass Spectrometer GCMS-QP2010 Plus;
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