

5-1. Papers Published by IROAST

Director

Kazuki TAKASHIMA

Christoph Hartmann, Kishore Venkatesan, Geoffrey de Looze, Kazuki Takashima, Shirley Shen, Robert Wilson, Additive manufacturing of WE43 and modified AZ91D magnesium alloys using the laser engineered net shaping process, *Materials Today Communications*, 39 (2024) 108774

Shohei Ueki, Yoji Mine, Yu-Lung Chiu, Paul Bowen, Kazuki Takashima, Effects of crystallographic orientation and lamellar configuration on fatigue crack propagation in single-colony structures of Ti–6Al–4V alloy: Alternating shear crack growth vs. damage accumulation crack propagation, *Materials Science and Engineering: A*, 890, (2024) 145885

Q Jia, Q. Jia, S. Zhu, Y. Zheng, Y. Mine, K. Takashima, S. Guan, A promoting nitric oxide-releasing coating containing copper ion on ZE21B alloy for potential vascular stent application, *Journal of Magnesium and Alloys*, 11 (12), (2023) 4542-4561

Vice Director

Kei TODA

Kei Toda, Vladimir Obolkin, Shin-Ichi Ohira & Kentaro Saeki, Abundant production of dimethylsulfoniopropionate as a cryoprotectant by freshwater phytoplanktonic dinoflagellates in ice-covered Lake Baikal, *Communications Biology*, 6, 1194, 2023.

Distinguished Professors

U. Rajendra ACHARYA

Kilic, Mehmet; Barua, Prabal Datta; Keles, Tugce; Yildiz, Arif Metehan; Tuncer, Ilknur; Dogan, Sengul; Baygin, Mehmet; Tuncer, Turker; Kuluozturk, Mutlu; Tan, Ru-San; Acharya, U. Rajendra, GCLP: An automated asthma detection model based on global chaotic logistic pattern using cough sounds, *Engineering Applications of Artificial Intelligence*, 127, Part A, 107184, 2024

Mahesh Anil Inamdar; U. Raghavendra; Anjan Gudigar; Sarvesh Bhandary; Massimo Salvi; Ravinesh C. Deo; Prabal Datta Barua; Edward J. Ciaccio; Filippo Molinari; U. Rajendra Acharya, A Novel Attention-Based Model for Semantic Segmentation of Prostate Glands Using Histopathological Images, *IEEE Access* 11, 108982-108994 (2023)

Arif Metehan Yildiz, Masayuki Tanabe, Makiko Kobayashi, Ilknur Tuncer, Prabal Datta Barua, Sengul Dogan, Turker Tuncer, Ru San Tan, U. Rajendra Acharya, FF-BTP Model for Novel Sound-Based Community Emotion Detection, *IEEE Access* 11, 108705-108715 (2023)

Prabal Datta Barua, Makiko Kobayashi, Masayuki Tanabe, Mehmet Baygin, Jose Kunnel Paul, Thomas Iype, Sengul Dogan, Turker Tuncer, Ru San Tan, U. Rajendra Acharya, Innovative Fibromyalgia Detection Approach Based on Quantum-Inspired 3LBP Feature Extractor Using ECG Signal, *IEEE Access* 11, 101359-101372 (2023)

Raghavendra, U.; Gudigar, Anjan; Paul, Aritra; Goutham, T. S.; Inamdar, Mahesh Anil; Hegde, Ajay; Devi, Aruna; Ooi, Chui Ping; Deo, Ravinesh C.; Barua, Prabal Datta; Molinari, Filippo;

Ciaccio, Edward J.; Acharya, U. Rajendra, Brain tumor detection and screening using artificial intelligence techniques: Current trends and future perspectives, Computers in Biology and Medicine 163, 107063 (2023)

Amanpreet Singh, Ali Abbasian Ardakani, Hui Wen Loh, P. V. Anamika, U. Rajendra Acharya, Sidharth Kamath, Anil K. Bhat, Automated detection of scaphoid fractures using deep neural networks in radiographs, Engineering Applications of Artificial Intelligence, 122, 106165, 2023

U. Raghavendra, Anjan Gudigar, Yashas Chakole, Praneet Kasula, D. P. Subha, Nahrizul Adib Kadri, Edward J. Ciaccio, U. Rajendra Acharya, Automated detection and screening of depression using continuous wavelet transform with electroencephalogram signals, Expert Systems 40 (4), e12803 (2023)

Mohan, Neethu; Kumar, S. Sachin; Soman, K. P.; Sujadevi, V. G.; Poornachandran, Prabakaran; Acharya, U. Rajendra, A Data-Driven Hybrid Methodology Using Randomized Low-Rank DMD Approximation and Flat-Top FIR Filter for Voltage Fluctuations Monitoring in Grid-Connected Distributed Generation Systems, IEEE Access 11, 39228 - 39242, 2023

Smith K Khare, Varun Bajaj and U Rajendra Acharya, SchizoNET: a robust and accurate Margenau–Hill time-frequency distribution based deep neural network model for schizophrenia detection using EEG signals, Physiological Measurement 44, 3, 035005 (2023)

**Published in the previous fiscal year, but included in this report due to being unlisted in the previous year.*

Shuting Xu, Ravinesh C Deo, Jeffrey Soar, Prabal Datta Barua, Oliver Faust, Nusrat Homaira, Adam Jaffe, Arm Luthful Kabir, U Rajendra Acharya, Automated detection of airflow obstructive diseases: A systematic review of the last decade (2013-2022), Computer Methods and Programs in Biomedicine 241, 107746, 2023

Smith K Khare, U Rajendra Acharya, An explainable and interpretable model for attention deficit hyperactivity disorder in children using EEG signals, Computers in Biology and Medicine 155, 106676 (2023)

**Published in the previous fiscal year, but included in this report due to being unlisted in the previous year.*

Jahmunah, V.; Chen, Sylvia; Oh, Shu Lih; Acharya, U. Rajendra; Chowbay, Balram, Automated warfarin dose prediction for Asian, American, and Caucasian populations using a deep neural network, Computers in Biology and Medicine, 153, 106548, 2023

**Published in the previous fiscal year, but included in this report due to being unlisted in the previous year.*

Oztekin, Faruk; Katar, Oguzhan; Sadak, Ferhat; Yildirim, Muhammed; Cakar, Hakan; Aydogan, Murat; Ozpolat, Zeynep; Yildirim, Tuba Talo; Yildirim, Ozal; Faust, Oliver; Acharya, U. Rajendra, An Explainable Deep Learning Model to Prediction Dental Caries Using Panoramic Radiograph Images, Diagnostics, 13 (2), 226, 2023

**Published in the previous fiscal year, but included in this report due to being unlisted in the previous year.*

Jahmunah, V.; Ng, E. Y. K.; Tan, Ru-San; Oh, Shu Lih; Acharya, U. Rajendra, Uncertainty quantification in DenseNet model using myocardial infarction ECG signals, Computer Methods and Programs in Biomedicine, 229, 107308, 2023

**Published in the previous fiscal year, but included in this report due to being unlisted in the previous year.*

Dmitri Aleks MOLODOV

Kevin Bissa, Talal Al-Samman, Dmitri A. Molodov, High temperature deformation and recrystallization behavior of magnesium bicrystals with $90^\circ\langle 101\bar{0}\rangle$ and $90^\circ\langle 112\bar{0}\rangle$ tilt grain boundaries, *Journal of Magnesium and Alloys*, 12, 2, 625-638, 2024

Kevin Bissa, Talal Al-Samman, Dmitri A. Molodov, On Melt Growth and Microstructure Characterization of Magnesium Bicrystals, *Crystals*, 2024, 14, 130.

Jann-Erik Brandenburg, Luis A. Barrales-Mora, Sadahiro Tsurekawa, Dmitri A. Molodov, Dynamic behavior of grain boundaries with misorientations in the vicinity of $\Sigma 3$ coherent and incoherent twin boundaries in Al bicrystals, *Acta Materialia*, 2023, 259, 119272

Konstantin D. Molodov, Talal Al-Samman, Dmitri A. Molodov: On the Plasticity and deformation mechanisms in magnesium crystals, *Metals*, 2023, 13(4), 640.

Kevin Bissa, Talal Al-Samman, Dmitri A. Molodov: Deformation behavior of magnesium bicrystals with symmetrical $90^\circ\langle 11\bar{2}0\rangle$ tilt grain boundaries analyzed by large area EBSD mapping, *Journal of Magnesium and Alloys*, 2023, 11, 5, 1556-1566.

László PUSZTAI

S. Hosokawa, J. R. Stellhorn, N. Boudet, N. Blanc, E. Magome, L. Pusztai, S. Kohara, K. Ikeda, and T. Otomo; Local- and intermediate-range partial structure study of As-Se glasses; *Journal of Physical of Japan* 93, 014601. (2024)

Pethes, I.; Pusztai, L.; Temleitner, L.; Evolution of the hydrogen-bonded network in methanol-water mixtures upon cooling; *Journal of Molecular Liquids* 386, 122494. (2023)

Yufeng ZHENG

Zhenning Su, Cancan Yao, Joanne Tipper, Lijun Yang, Xiangbo Xu, Xihua Chen, Guo Bao, Bin He*, Xiaoxue Xu*, and Yufeng Zheng,* Nanostrategy of Targeting at Embryonic Trophoblast Cells Using CuO Nanoparticles for Female Contraception, *ACS Nano*, 17, 24, 25185–25204 (2023)

Q Jia, Q. Jia, S. Zhu, Y. Zheng, Y. Mine, K. Takashima, S. Guan, A promoting nitric oxide-releasing coating containing copper ion on ZE21B alloy for potential vascular stent application, *Journal of Magnesium and Alloys*, 11 (12), 4542-4561 (2023)

Li-Xin Long, Fen-Fen Chen, Lan-Yue Cui, Ze-Song Wei, Hai-Tao Wang, Rong-Chang Zeng, Yu-Feng Zheng, Comparison of microstructure, mechanical property, and degradation rate of Mg-1Li-1Ca and Mg-4Li-1Ca alloys, *Bioactive Materials* 26, 29-291 (2023)

Wang, Shufang; Liu, Tingting; Nan, Nan; Lu, Cong; Liang, Min; Wang, Siyu; Wang, Hu; He, Bin; Chen, Xihua; Xu, Xiangbo; Zheng, Yufeng Exosomes from Human Umbilical Cord Mesenchymal Stem Cells Facilitates Injured Endometrial Restoring in Early Repair Period through miR-202-3p Mediating Formation of ECM, *Stem Cell Reviews and Reports*, 19, 6, 1954-1964 (2023)

Xiehui Chen, Rong Chang, Hongtao Liu, Le Zhang, Yufeng Zheng, Moving research direction in the field of metallic bioresorbable stents-A mini-review, *Bioactive Materials* 24, 20-25(2023)

Zheng, Yufeng; Liu, Xiao; Shen, Danni; Li, Wenting; Cheng, Yan; Yang, Ming; Kou, Yuhui; Jiang, Baoguo, Perceiving the connection between the bone healing process and biodegradation of biodegradable metal implants through precise bioadaptability principle, *Journal of Materials Science & Technology* 147, 132-144 (2023)

Tenue-track Faculty members

Gaochuang CAI

Junaid, K.*, Zyed, M., Nonna, A., Cai, G., Si Larbi, A. Tensile and cracking behaviour of crimped textile reinforced mortar (TRM) based on digital image correlation. *Construction and Building Materials*, 417, 135321. (2024).

F. Zhao, F. Xiong, G. Cai, Q. Ge, Si Larbi, A. Seismic behavior and simplified hysteretic model of precast concrete wall panels with bolted connections under cyclic loading. *Engineering Structures* 292, 1, 116562. (2023).

Sun, Y. P., & Cai, G. C. Seismic Behavior of Circular Concrete Columns Reinforced by Low Bond Ultrahigh Strength Rebars. *Journal of Structural Engineering*, 149(9), 04023126. (2023).

Zhu, H., He, Y., Cai, G., Cheng, S., Zhang, Y., & Larbi, A. S. Bond performance of carbon fiber reinforced polymer rebars in ultra-high-performance concrete. *Construction and Building Materials*, 387, 131646. (2023).

Cai, G., Fujinaga, T., Si Larbi, A., Wen, Y., & Malla, P. B. Cyclic behavior of RCFT columns with large D/t ratio steel tubes: Effect of reinforcement arrangement. *Bulletin of Earthquake Engineering*, 21(9), 4565-4588. (2023).

Wang, Y., & Cai, G. Seismic behavior of square concrete columns confined by FRP-steel composite tube. *Journal of Building Engineering*, 65, 105754. (2023).

Hiroki MATSUO

Seiyu Aso, Hiroki Matsuo*, Yuji Noguchi*, Reversible electric-field-induced phase transition in Ca-modified NaNbO₃ perovskites for energy storage applications, *Scientific Reports* 13, 6771 (2023).

Hiroki Matsuo* Domain-wall photovoltaic effect in ferroelectric perovskite oxides, *Journal of the Ceramic Society of Japan* 131, 429–436 (2023).

Hiroki Matsuo*, Yuji Noguchi, Impact of Mn doping on the ferroelectric photovoltaic effect in multidomain BiFeO₃ thin films under above-bandgap illumination, *Japanese Journal of Applied Physics* 62, SM1011 (2023).

Julián A. Ortiz-Corrales, Hiroki Matsuo, Junichiro Otomo*, Design and Fabrication of Protonic Ceramic Fuel Cells Based on BaZr_{0.8}Y_{0.2}O_{3-δ} | BaZr_{0.1}Ce_{0.7}Y_{0.1}Yb_{0.1}O_{3-δ} Bilayer Electrolyte, *Journal of The Electrochemical Society* 170, 124520 (2023).

Zhongyue ZHANG

Z. Cai, Md Saidul Islam, M. Fukuzaki, M. A. Rahman, J. Matsuda, Z. Zhang, Y. Sekine, B. Bateer

and S. Hayami, Cu₂NiSnS₄ Nanoparticles Supported on rGO for Dual Frequency Range Electromagnetic Shielding. *ACS Appl. Nano Mater.* 2023, 6, 21980–21990.

L. I. Ardhayanti, Md. Saidul Islam, M. Fukuda, X. Liu, Z. Zhang, Y. Sekine and S. Hayami, Thermally stable proton conductivity from nanodiamond oxide, *Chem. Commun.*, 59, 8306-8309, 2023.

Q. Chen, Z. Zhang and K. Awaga, Magnetometric Characterization of Intermediates in the Solid-State Electrochemistry of Redox-Active Metal-Organic Frameworks. *J. Vis. Exp.* 2023, 196, e65335.

Postdoctoral Researchers

Jonas Karl N. AGUTAYA

K. Sonda, T. Kodama, M. D. Wea Siga, K. Masumoto, M. Iwai, M. Fadil, M. S. Ahmad, J. K. C. N. Agutaya, Y. Inomata, A. T. Quitain, A. Hardiansyah and T. Kida, Selective Detection of CO Using Proton-Conducting Graphene Oxide Membranes with Pt-Doped SnO₂ Electrocatalysts: Mechanistic Study by Operando DRIFTS, *ACS Appl. Mater. Interfaces*, 2023, 15, 52724–52734.

Prafulla Bahadur MALLA

Cai, G., Fujinaga, T., Si Larbi, A., Wen, Y., & Malla, P. B. Cyclic behavior of RCFT columns with large D/t ratio steel tubes: Effect of reinforcement arrangement, *Bulletin of Earthquake Engineering* 21.9 (2023): 4565-4588

Reetu Rani

M. Garg, R. Rani, V.K. Meena, S. Singh, Significance of 3D printing for a sustainable environment, *Materials Today Sustainability*, 23, 1100419 (2023)

International Joint Research Faculty Members

Takumi HIGAKI

Hiromoto Y, Minamino N, Kikuchi S, Kimata Y, Matsumoto H, Nakagawa S, Ueda M, Higaki T, Comprehensive and quantitative analysis of intracellular structure polarization at the apical-basal axis in elongating *Arabidopsis* zygotes, *Sci Rep* 13: 22879 (2023).

Ichita M, Higaki T. Intracellular trafficking regulation of plasma membrane H⁺-ATPase and environmental response in plants. *Cytologia* 88: 169-173 (2023)

Kikukawa K, Takigawa-Imamura H, Soga K, Kotake T, Higaki T Smooth elongation of pavement cells induced by *RIC1* overexpression leads to marginal protrusions of the cotyledon in *Arabidopsis thaliana*. *Plant Cell Physiol* 64: 1356–1371 (2023).

Hirano T, Ebine K, Ueda T, Higaki T, Watanabe-Nakayama T, Konno H, Takigawa-Imamura H, Sato MH The SYP123-VAMP727 SNARE complex delivers secondary cell wall components for root hair shank hardening in *Arabidopsis*. *Plant Cell* 35: 4347–4365 (2023).

Yue Y, Hotta T, Higaki T, Verhey KJ, Ohi R, Microtubule detyrosination by VASH1/SVBP is regulated by the conformational state of tubulin in the lattice. *Curr Biol* 33: 4111–4123 (2023).

Matsumoto T, Higaki T, Takatsuka H, Kutsuna N, Ogata Y, Hasezawa S, Umeda M, Inada N, *Arabidopsis thaliana* subclass I ACTIN DEPOLYMERIZING FACTORS regulate nuclear organization and gene expression. *Plant Cell Physiol* 64: 1231–1242 (2023).

Nishimura T, Mori S, Shikata H, Nakamura M, Hashiguchi Y, Abe Y, Hagihara T, Yoshikawa HY, Toyota M, Higaki T, Morita MT, Cell polarity linked to gravity sensing is generated by protein translocation from statoliths to the plasma membrane. *Science* 381: 1006–1010 (2023).

Wint H, Li J, Abe T, Yamada H, Higaki T, Nasu Y, Watanabe M, Takei K, Takeda T, Pacsin 2-dependent N-cadherin internalization regulates the migration behaviour of malignant cancer cells. *J Cell Sci* 136: jcs260827 (2023).

Yoshida D, Akita K, Higaki T, Machine learning and feature analysis of the cortical microtubule organization of *Arabidopsis* cotyledon pavement cells. *Protoplasma* 260, 3, 987-998 (2023).

Takahiro HOSONO

Maruyama, R., Yasumoto, K., Mizusawa, N., Iijima, M., Yasumoto-Hirose, M., Iguchi, A., Hermawan, O.R., Hosono, T., Takada, R., Song, K.-H., Shinjo, R., Watabe, S., Yasumoto, J., Metagenomic analysis of the microbial communities and associated network of nitrogen metabolism genes in the Ryukyu limestone aquifer. *Scientific Reports* 14, 4356 (2024).

Hermawan, O.R., Hosono, T., Yasumoto, J., Yasumoto, K., Song, K.-H., Maruyama, R., Iijima, M., Yasumoto-Hirose, M., Takada, R., Hijikawa, K., Shinjo, R., Mechanism of denitrification in subsurface-dammed Ryukyu limestone. *Science of the Total Environment* 912, 169457 (2024).

Hosono, T., Taniguchi, K., Rahman, A.T.M.S., Yamamoto, T., Takayama, K., Yu, Z.-Q., Aihara, T., Ikehara, T., Amano, H., Tanimizu, M., Nakagawa, K., Stable N and O isotopic indicators coupled with social data analysis revealed long-term shift in the cause of groundwater nitrate pollution: insights into future water resource management. *Ecological Indicators*, 154, 110670 (2023).

Hermawan, O.R., Hosono, T., Yasumoto, J., Yasumoto, K., Song, K.-H., Maruyama, R., Iijima, M., Yasumoto-Hirose, M., Takada, R., Hijikawa, K., Shinjo, R., Effective use of farmland soil samples for N and O isotopic source fingerprinting of groundwater nitrate contamination in the subsurface dammed limestone aquifer, Southern Okinawa Island, Japan. *Journal of Hydrology*, 619, 129364 (2023).

Mizota, C., Hosono, T., Okumura, A., Yamanaka, T., Nitrogen cycling in western India as revealed by nitrogen isotopes and the historic production of saltpetre. *Archaeometry*, 65, 3, 635-652 (2023).

Makiko KOBAYASHI

Masayuki Tanabe, Kosuke Sato, Toru Uda and Makiko Kobayashi, Thin, flexible, and biocompatible medical ultrasound array transducer using a sol-gel composite spray technique, *Jpn. J. Appl. Phys.* 62 SJ1034 (2023)

Prabal Datta Barua, Makiko Kobayashi, Masayuki Tanabe, Mehmet Baygin, Jose Kunnel Paul,

Thomas Iype, Sengul Dogan, Turker Tuncer, Ru San Tan, U. Rajendra Acharya, Innovative Fibromyalgia Detection Approach Based on Quantum-Inspired 3LBP Feature Extractor Using ECG Signal, IEEE Access 11, 101359-101372 (2023)

Arif Metehan Yildiz, Masayuki Tanabe, Makiko Kobayashi, Ilknur Tuncer, Prabal Datta Barua, Sengul Dogan, Turker Tuncer, Ru San Tan, U. Rajendra Acharya, FF-BTP Model for Novel Sound-Based Community Emotion Detection, IEEE Access 11, 108705-108715 (2023)

Ruda LEE

Ruda Lee, Sho Tanigawa, Yong Il Park, Hoon Kim. Antimetabolite Prodrug Delivery for Non-small Cell Lung Cancer, Korean Society for Biotechnology and Bioengineering Journal, 38: 236-243, 2023

Yuta NAKASHIMA

Haruhiko Takemoto, Keito Sonoda, Kanae Ike, Yoichi Saito, Yoshitaka Nakanishi, Yuta Nakashima*, Development of Cell Micropatterning Technique Using Laser Processing of Alginate Gel, Journal of Robotics and Mechatronics, 35(5), 1185-1192, 2023.

Yuta Kishimoto, Sachiko Ide, Toyohiro Naito, Yuta Nakashima, Yoshitaka Nakanishi, Noritada Kaji, Development of a Microfluidic Ion Current Measurement System for Single-Microparticle Detection, Journal of Robotics and Mechatronics, 35(5), 1193-1202, 2023.

Yoshitaka Nakanishi, Yukio Fujiwara, Yuta Nakashima, Generation of Nano/Microparticles for Immunological Assessments, Biotribology, 33-34, 100235, 2023.

Yoshitaka Nakanishi, Yukio Fujiwara, Yuta Nakashima, Yoshihiro Komohara, Kazunori Hino, Hiromasa Miura, Hidehiko Higaki, Microchamber device for studying phagocytosis of ultra-high molecular weight polyethylene particles by human monocyte-derived macrophages, Wear, 523, 204749, 2023.

Yoichi Saito, Yukio Fujiwara, Yuji Miyamoto, Koji Ohnishi, Yuta Nakashima, Yasuhiko Tabata, Hideo Baba, Yoshihiro Komohara, CD169+ sinus macrophages in regional lymph nodes do not predict mismatch-repair status of patients with colorectal cancer, Cancer Medicine, 12(9), 10199-10211, 2023.

Shin-Ichi OHIRA

Rahmat Hidayat*, Ganjar Fadillah, Shin-Ichi Ohira, Glass tube-coated TiO₂ nanostructure for degradation of methylene blue: an experimental and design of column photocatalytic reactor, Indonesian Journal of Chemical Analysis, 6(1), 52–62 (2023).

**Published in the previous fiscal year, but included in this report due to being unlisted in the previous year.*

Kei Toda*, Vladimir Obolkin, Shin-Ichi Ohira, Kentaro Saeki, Abundant production of dimethylsulfoniopropionate as a cryoprotectant by freshwater phytoplanktonic dinoflagellates in ice-covered Lake Baikal, Communications Biology, 6, 1194 (2023).

Atsushi SAINOKI

Zhang, Zhe, Lishuai Jiang, Chunang Li, Yang Zhao, Atsushi Sainoki, and Xuanlin Gong. Characteristics and mechanism of time on sand powder 3D printing rock analogue: a new method for fractured rock mechanics, Geomechanics and Geophysics for Geo-Energy and Geo-Resources

9, 1: 166 (2023).

Schwartzkopff, Adam K., Atsushi Sainoki, Thomas Bruning, and Murat Karakus. A conceptual three-dimensional frictional model to predict the effect of the intermediate principal stress based on the Mohr-Coulomb and Hoek-Brown failure criteria. *International Journal of Rock Mechanics and Mining Sciences* 172 105605 (2023).

Feng, Hao, Lishuai Jiang, Qingwei Wang, Peng Tang, Atsushi Sainoki, and Hani S. Mitri. Effect of surface retaining elements on rock stability: laboratory investigation with sand powder 3D printing. *International Journal of Coal Science & Technology* 10, 1: 46 (2023)

Mitsuru SASAKI

Mei Matsumura, Jun Inagaki, Ryo Yamada, Natsuko Tashiro, Katsuya Ito, and Mitsuru Sasaki*, Material Separation from Polyester/Cotton Blended Fabrics Using Hydrothermal Treatment, *ACS Omega*, 9(11), 13125–13133 (2024).

Keitaro TAKAHASHI

Yuta Shiohira, Yuka Fujii, Hajime Kita, Tomoki Kimura, Yuka Terada, Keitaro Takahashi, A search for auroral radio emission from β Pictoris b, *Monthly Notices of the Royal Astronomical Society*, 528, 2, 2136-2144, 2024

Avinash Kumar Paladi, Churchil Dwivedi, Perna Rana, Nobleson K, Abhimanyu Susobhanan, Bhal Chandra Joshi, Pratik Tarafdar, Debabrata Deb, Swetha Arumugam, A Gopakumar, M A Krishnakumar, Neelam Dhanda Batra, Jyotijwal Debnath, Fazal Kareem, Paramasivan Arumugam, Manjari Bagchi, Adarsh Bathula, Subhajit Dandapat, Shantanu Desai, Yashwant Gupta, Shinnosuke Hisano, Divyansh Kharbanda, Tomonosuke Kikunaga, Neel Kolhe, Yogesh Maan, P K Manoharan, Jaikhomba Singha, Aman Srivastava, Mayuresh Surnis, Keitaro Takahashi, Multi-band Extension of the Wideband Timing Technique, *Monthly Notices of the Royal Astronomical Society*, 527, 1, 213-231, 2024

Ryo Kato and Keitaro Takahashi, Precision of localization of single gravitational-wave source with pulsar timing array, *Physical Review D*, 108, 12, 123535, 2023

J. Antoniadis, P. Arumugam, S. Arumugam, S. Babak, M. Bagchi, A.-S. Bak Nielsen, C. G. Bassa, A. Bathula, A. Berthereau, M. Bonetti, E. Bortolas, P. R. Brook, M. Burgay, R. N. Caballero, A. Chalumeau, D. J. Champion, S. Chanlaridis, S. Chen, I. Cognard, S. Dandapat, D. Deb, S. Desai, G. Desvignes, N. Dhanda-Batra, C. Dwivedi, M. Falxa, R. D. Ferdman, A. Franchini, J. R. Gair, B. Goncharov, A. Gopakumar, E. Graikou, J.-M. Grießmeier, L. Guillemot, Y. J. Guo, Y. Gupta, S. Hisano, H. Hu, F. Iraci, D. Izquierdo-Villalba, J. Jang, J. Jawor, G. H. Janssen, A. Jessner, B. C. Joshi, F. Kareem, R. Karuppusamy, E. F. Keane, M. J. Keith, D. Kharbanda, T. Kikunaga, N. Kolhe, M. Kramer, M. A. Krishnakumar, K. Lackeos, K. J. Lee, K. Liu, Y. Liu, A. G. Lyne, J. W. McKee, Y. Maan, R. A. Main, M. B. Mickaliger, I. C. Nitu, K. Nobleson, A. K. Paladi, A. Parthasarathy, B. B. P. Perera, D. Perrodin, A. Petiteau, N. K. Porayko, A. Possenti, T. Prabu, H. Quelquejay Leclere, P. Rana, A. Samajdar, S. A. Sanidas, A. Sesana, G. Shaifullah, J. Singha, L. Speri, R. Spiewak, A. Srivastava, B. W. Stappers, M. Surnis, S. C. Susarla, A. Susobhanan, K. Takahashi, P. Tarafdar, G. Theureau, C. Tiburzi, E. van der Wateren, A. Vecchio, V. Venkatraman Krishnan, J. P. W. Verbiest, J. Wang, L. Wang, Z. Wu, The second data release from the European Pulsar Timing Array. III. Search for gravitational wave signals, *Astronomy & Astrophysics*, 678, A50, 2023

J. Antoniadis, P. Arumugam, S. Arumugam, S. Babak, M. Bagchi, A. S. Bak Nielsen, C. G. Bassa, A. Bathula, A. Berthereau, M. Bonetti, E. Bortolas, P. R. Brook, M. Burgay, R. N. Caballero, A. Chalumeau, D. J. Champion, S. Chanlaridis, S. Chen, I. Cognard, S. Dandapat, D. Deb, S. Desai, G. Desvignes, N. Dhanda-Batra, C. Dwivedi, M. Falxa, R. D. Ferdman, A. Franchini, J. R. Gair, B. Goncharov, A. Gopakumar, E. Graikou, J.-M. Grießmeier, L. Guillemot, Y. J. Guo, Y. Gupta, S. Hisano, H. Hu, F. Iraci, D. Izquierdo-Villalba, J. Jang, J. Jawor, G. H. Janssen, A. Jessner, B. C. Joshi, F. Kareem, R. Karuppusamy, E. F. Keane, M. J. Keith, D. Kharbanda, T. Kikunaga, N. Kolhe, M. Kramer, M. A. Krishnakumar, K. Lackeos, K. J. Lee, K. Liu, Y. Liu, A. G. Lyne, J. W. McKee, Y. Maan, R. A. Main, M. B. Mickaliger, I. C. Nițu, K. Nobleson, A. K. Paladi, A. Parthasarathy, B. B. P. Perera, D. Perrodin, A. Petiteau, N. K. Porayko, A. Possenti, T. Prabu, H. Quelquejay Leclere, P. Rana, A. Samajdar, S. A. Sanidas, A. Sesana, G. Shaifullah, J. Singha, L. Speri, R. Spiewak, A. Srivastava, B. W. Stappers, M. Surnis, S. C. Susarla, A. Susobhanan, K. Takahashi, P. Tarafdar, G. Theureau, C. Tiburzi, E. van der Wateren, A. Vecchio, V. Venkatraman Krishnan, J. P. W. Verbiest, J. Wang, L. Wang, Z. Wu, The second data release from the European Pulsar Timing Array. II. Customised pulsar noise models for spatially correlated gravitational waves, EPTA Collaboration; InPTA Collaboration, *Astronomy & Astrophysics*, 678, A49, 2023

Aman Srivastava, Shantanu Desai, Neel Kolhe, Mayuresh Surnis, Bhal Chandra Joshi, Abhimanyu Susobhanan, Aurélien Chalumeau, Shinnosuke Hisano, Nobleson K., Swetha Arumugam, Divyansh Kharbanda, Jaikhomba Singha, Pratik Tarafdar, P Arumugam, Manjari Bagchi, Adarsh Bathula, Subhajit Dandapat, Lankeswar Dey, Churchil Dwivedi, Raghav Girgaonkar, A. Gopakumar, Yashwant Gupta, Tomonosuke Kikunaga, M. A. Krishnakumar, Kuo Liu, Yogesh Maan, P K Manoharan, Avinash Kumar Paladi, Prerna Rana, Golam M. Shaifullah, Keitaro Takahashi, Noise analysis in the Indian Pulsar Timing Array Data Release I, *Physical Review D*, 108, 2, 023008, 2023

IROAST Visiting Professors

Konstantinos Daniel TSAVDARIDIS

Reena, C.G., Ananthi, B.G. and Tsavdaridis, K.D. Column Link Behavior in Eccentrically Braced Composite 3-Dimensional Frames, *Buildings*, 13(12), 2970 (2023)

Jorge Norberto BELTRAMINI

Jimenez Forero, Javier, Atanda, Luqman, Rahmati, Shahrooz, Bartley, John, Beltramini, Jorge, Doherty, William, Moghaddam, Lalehvas, Ostrikov, Kostya (Ken), & Rackemann, Darryn, Thermochemically Treated Tin-Doped Nanocarbon Composite Structures for the High Catalytic Performance in the One-Step Synthesis of 5-Methyl Furfural, *ACS Sustainable Chem. Eng.* 12, 1, 480–489 (2024)

IROAST Research Cluster members

·Research Cluster “Plant Cell and Developmental Biology”

Shinichiro SAWA

Katogi, T., Yoshida, Y., Nakayama, K., Hoshi, Y., and Sawa, S. Genome size determination and chromosome characterization of *Limosella aquatica* L. (Scrophulariaceae) in Japan. *Cytologia*, 88, 339-346 (2024).

Nakagami, S., Notaguchi, M., Kondo, T., Okamoto, S., Ida, T., Sato, Y., Higashiyama, T., Tsai, A., Y-L., Ishida, T., and Sawa, S. Root-knot nematode modulates plant CLE3-CLV1 signaling as a long-distance signal for successful infection. *Science Adv.* 9 (22) eadf4803 (2023)

•Research Cluster “Nano-Organics and Nano-Hybrids”

Makoto TAKAFUJI

N. Ryu, Y. Yamamoto, Y. Okazaki, N. Hano, Y. Iwamoto, T. Shirosaki, S. Nagaoka, R. Oda, H. Ihara, M. Takafuji, Controlled packing of chiral assembly scaffolds to promote chiral J-aggregation of carbocyanine dyes, *Chemical Communications*, 59, 11979-11982, 2023

Yutaka KUWAHARA

Miu Tsuji, Sara Abuhadba, Angela Chen, Mio Ito, Amrita Makhijani, Yutaka Kuwahara, Tatiana Esipova, and Tomoyasu Mani*, Red-Colored Circularly Polarized Luminescence from a Benzo-Fused BODIPY-BINOL Complex, *The Journal of Physical Chemistry B*, 127, 45, 9781-9787 2023

•Research Cluster “Nano-materials for Energy Applications and Environmental Protection”

Tetsuya KIDA

I Sahroni, T Kodama, MS Ahmad, T Nakahara, Y Inomata, T. Kida*, Graphene Oxide Membrane Reactor for Electrochemical Deuteration Reactions, *Nano Letters*, 24, 12, 3590–3597 (2024).

Tetsuya KIDA & Muhammad Sohail AHMAD†

M.S. Ahmad, Y. Nagata, K. Masumoto, Y. Inomata, K. Hatakeyama, A. T. Quitain, A. Shotipruk, T. Kida*, Manganese Doped Graphene Oxide: Selective Hydrogenation Catalyst for Converting 5-Hydroxymethyl Furfural to 5-Methyl Furfural, *Molecular Catalysis*, 553, 113787 (2024).

M. Ashraf, R. Ali, N. Ullah, M. S. Ahmad, T. Kida, S. Wooh, W. Tremel, U. Schwingenschlögl, M. N. Tahir, Bandgap Engineering of Melon Using Highly Reduced Graphene Oxide for Enhanced Photoelectrochemical Hydrogen Evolution, *Advanced Materials*, 2301342 (2023).

K. Sonda, T. Kodama, M.D. Wea Siga, K. Masumoto, M. Iwai, M. Fadil, M. S. Ahmad, J. K.C. Agutaya, Y. Inomata, A. T. Quitain, A. Hardiansyah, T. Kida*, Selective Detection of CO Using Proton-Conducting Graphene Oxide Membranes with Pt-Doped SnO₂ Electrocatalysts: Mechanistic Study by Operando DRIFTS, *ACS Applied Materials and Interfaces*, 15, 45, 52724-52734 (2023).

S. Ullah, S. Wang, M.S. Ahmad, H.M.A. Sharif, Q. Liu, T. Kida, A. Shafique, M. Ur Rehman, G. Wang, J. Qiu, Investigating the Role of Oxygen Vacancies in Metal Oxide for Enhanced Electrochemical Reduction of NO₃⁻ To NH₃: Mechanistic Insights, *Inorganic Chemistry Frontiers*, 10 (22), 6440-6488 (2023).

Tetsuya KIDA & Yusuke INOMATA† & Muhammad Sohail AHMAD†

M. S. Ahmad, Y. Inomata, T. Kida*, Energy Application of Graphene Based Membrane: Hydrogen Separation, *The Chemical Record*, e202300163 (2023).

Y. Tano, M.S. Ahmad, Y. Watase, T. Tsugawa, S. Takase, Y. Inomata, K. Hatakeyama, S. Ida, A.T. Quitain, Y. Shimizu, T. Kida*, Enhancement of Formic Acid Formation by Nitrogen-Doped Graphene Oxide Nanosheets Decorated with Sn Nanoparticles in Electrochemical CO₂ Reduction, *Sustainable Energy and Fuels*, 7, 3964-3971 (2023).

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Armando T. QUITAIN

Hapid, Abdul; Zullaikah, Siti; Mahfud, Adji; Kawigraha, Adji; Sudyanto, Yanto; Nareswari, Ratika Benita; Quitain, Armando T., Oxidation of sulfide mineral and metal extraction analysis in the microwave-assisted roasting pretreatment of refractory gold ore, *Arabian Journal of Chemistry*, 17 (1), 105447, (2024)

IROAST former tenure-track faculty member

Mitsuhiro AIDA

J Irepan Reyes-Olalde, Mitsuhiro Aida, Stefan de Folter, An evo-devo view of the gynoeceium, *Journal of Experimental Botany*, 74, 14, 3933–3950

Takashi ISHIDA

Nakagami, S., Notaguchi, M., Kondo, T., Okamoto, S., Ida, T., Sato, Y., Higashiyama, T., Tsai, A., Y-L., Ishida, T., and Sawa, S. Root-knot nematode modulates plant CLE3-CLV1 signaling as a long-distance signal for successful infection, *Science Adv.* 9. eadf4803 (2023)