e-ASIA Joint Research Program (e-ASIA JRP)
The review results of the 10th Call for Proposals
in the field of "Materials"
on the topic of
"Materials Informatics and Advanced Material Research by Utilizing Computers"

It is our great pleasure to announce the selected projects of the e-ASIA Joint Research Program (e-ASIA JRP*1) 10th Call for Proposals in the field of "Materials" on the topic of "Materials Informatics and Advanced Material Research by Utilizing Computers".

A total of 12 proposals was submitted in response to the 10th joint call for proposals. After careful consideration based on the joint review results by the five funding organizations from five countries participating in the call*2, the following four collaborative projects were selected for support with the approval of the e-ASIA JRP Board. Support to the projects will continue for three years.

"Data-Driven Design of Mechanical properties in Metallic Layered Structures"

to be conducted jointly by:

Japan: Manabu Enoki, Professor, The University of Tokyo
Singapore: Mark Jhon, Senior Scientist, Institute of High Performance Computing, Agency for Science, Technology and Research (A*STAR)
Indonesia: Fergyanto Gunawan, Associate Professor / Head of Department, Bina Nusantara (BINUS) University

This cooperative research project aims for the design optimization of mechanical properties in metallic layered structures by data-driven approach that integrates various computational simulations and information science techniques. Through collaborative and complementary research in Japan, Singapore and Indonesia, this project is expected to construct new material research and development methods in metallic layered structures.

"Computational Design of High Entropy Alloys for Catalyst and Battery Applications"

to be conducted jointly by:

Philippines: Allan Abraham Padama, Professor, University of Philippines Los Baños
Japan: Koji Shimizu, Assistant Professor, The University of Tokyo
Singapore: Teck Leong Tan, Deputy Department. Director, Institute of High Performance Computing, Agency for Science, Technology and Research (A*STAR)
Thailand: Tongjai Chookajorn, Researcher, National Metal and Materials Technology Center (MTEC), National Science and Technology Development Agency (NSTDA)

This cooperative research project aims to computationally design high entropy alloys (HEAs) for catalyst and battery applications. Understanding the nature of HEAs, a new class of multi-component materials, will lead to their potential industrial applications. Taking advantage of atomistic calculations and materials informatics methods, we reveal the physical properties of the designed HEAs and evaluate their innovative functionalities.

“Data-driven computational design of high-performance thermoelectrics in atomic layers and topological materials”

to be conducted jointly by:
Japan: Fumiyuki Ishii, Associate Professor, Kanazawa University
Thailand: Tosawat Seetawan, Professor, Sakon Nakhon Rajabhat University
Indonesia: Melania S. Muntini, Lecturer, Sepuluh Nopember Institute of Technology

This cooperative research project aims to achieve high-performance thermoelectrics based on two-dimensional atomic layers and topological materials using cutting-edge computational tools assisted by experimental data. By this integrated approach, the project may give better thermoelectric materials design that will contribute to understanding both conventional and exotic thermoelectric materials as well as to the development of new thermoelectric applications.

“Multi-scale Simulations and Design for CO_2 recycling related processes”

to be conducted jointly by:
Japan: Yoshitada Morikawa Professor, Osaka University
Indonesia: Suprijadi, Professor, Institute of Technology Bandung (ITB)
Thailand: Joongjai Panpranot, Professor, Chulalongkorn University

This cooperative research project aims to mitigate the global warming problem by designing materials for CO_2 recycling and related processes such as CO_2 capture and hydrogenation, direct methanol fuel cell electrocatalysts and next generation secondary batteries, by using multi-scale computer simulation methods with electronic structure theory and machine learning methods in collaboration with experimental groups.

On behalf of the e-ASIA JRP, we would like to offer our sincerest congratulations to the project teams and look forward to the significant impact their results will bring to our society in the future.

*1 The e-ASIA Joint Research Program (e-ASIA JRP)
Through the acceleration of science and technology research exchange and collaboration in the East Asian region, the e-ASIA Joint Research Program (e-ASIA JRP) aims to strengthen research and development capabilities towards resolution of shared challenges across the region, including those associated with materials, alternative energy, agriculture, health research, disaster risk reduction and management, advanced interdisciplinary research towards innovation, and environment. As part of that objective, the e-ASIA JRP intends to support the multilateral collaborative research projects, which must consist of three or more countries.
e-ASIA JRP’s homepage: http://www.the-easia.org/jrp/

*2 The list of organizations participating in the 10th joint call for proposals in the field of “Materials”:

- Ministry of Education, Culture, Research and Technology (DIKBUDRISTEK) (Previous Responsible Organization: Ministry of Research and Technology/ National Research and Innovation Agency (RISTEK/BRIN)), Indonesia
  URL: http://www.dikti.kemdikbud.go.id/ (Available only in Indonesian)
  https://simlitabmas.ristekbrin.go.id/

- Japan Science and Technology Agency (JST), Japan
  URL: https://www.jst.go.jp/EN/

- Department of Science and Technology (DOST-PCIEERD), Philippines
  URL: https://www.dost.gov.ph/ (DOST)
  https://pcieerd.dost.gov.ph/ (DOST-PCIEERD)

- Agency for Science, Technology and Research (A*STAR), Singapore
  URL: https://www.a-star.edu.sg/

- Program Management Unit for Human Resources & Institutional Development, Research and Innovation (PMU-B), Thailand
  URL: https://www.nxpo.or.th/B/

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