Science Agora 2019

Japan Science and Technology Agency
Department for Promotion of Science in Society
Human in the New Age - What kind of future will we live in?

The theme of Science Agora 2019 is “Human in the New Age.”

How do you want to live in the future, when there will be further development of science and technology? What will the necessary technologies be for an ideal future? What humanity can we not entrust machines and new technology to? Science Agora 2019 will provide an opportunity for consideration from various viewpoints of what it means humanity, what you want to choose, and how we want to use the things in front of us.
Program for thinking about an ideal future
We will provide a wide range of topics that raise questions on the relationship between society and science through experiences of extending future mobility and sports beyond the boundaries of age and disabilities, ascertaining the origin of the universe, and solving food problems owing to population growth.

Programs for introducing good practices for assessing and solving social issues
Through the awards ceremony for local initiatives, we will consider good examples of efforts to solve social issues and aim for horizontal development in other regions.

Science Agora will create with the next generation
We will offer various programs targeting the younger generation, such as dialogues with scientists, symposia, workshops, and booths and sessions organized by young researchers and students of high schools, junior high schools, and universities.
Keynote Lecture: November 15 (Fri.) 13:30–14:20

1. Reiko Abe, Chair person, Oriental Consultants India Pvt. Ltd.  
   "Madam, this is Our Metro!"

2. Michael Matlosz, President of EuroScience  
   "A new generation of responsible science professionals for the New Age"

Keynote Session: November 15 (Fri.) 14:30–16:00
Human in the New Age--What kind of future will we live in?--

【Panelists】  
Masahiko Inami (The University of Tokyo), Hisashi Nakao (Nanzan University), Yukihiro Nobuhara (The University of Tokyo), M.J. Post (Maastricht University), Lara L. Lee (Creative Renewal Co.)

【Panelists/ Facilitator】 Syoji Komai (Nara Institute of Science and Technology)
The 1st Brilliant Female Researchers Award (Jun Ashida Award)
Award Ceremony & Talk Session

The award ceremony and a talk session are scheduled to be held with the award winners and next generation youth, mainly high school students.

As part of our efforts to promote the active participation of female researchers, JST set up this awards program to commend: female researchers working on outstanding research that contributes to a sustainable future society; organizations supporting female researchers’ activities.

- **Date:** November 17, 2019 (Sun.)
  13:00-14:30
- **Venue:** Miraikan 1F
- **Host:** JST
The LCS Panel Discussion will focus on the possibility of a bright and prosperous future led by renewable energy with respect to vital local activities that have created new industries by utilizing renewable energy, the key to preventing global warming.

**Speakers**

- **Moderator:**
  - Shunsuke Mori, Professor Emeritus, Tokyo University of Science, Research Director of Center for Low Carbon Society Strategy (LCS)

- **Panelists:**
  - Takahiro Ueyama, Nishiawakura Village, Okayama
  - Yukihisa Uchiyama, Hamamatsu-City, Shizuoka
  - Kazuyuki Hinata, CEO, Kuji Biomass Energy Co.

- **Commentator:**
  - Hiroshi Komiyama, the 28th president of University of Tokyo, and Director-General, Center for Low Carbon Society Strategy (LCS)

**Date:** November 17 (Sun), 2019 at 10:00–11:15

**Venue:** Agora Stage, Telecom Center Building 1F
Introducing Next Generation Scientists

Next generation scientists will introduce their programs on the Agora stage. The Global Science Campus (GSC) National Meeting and the Fostering Next-generation Scientists Program (FSP) Science Conference 2019.

■ Speakers:
  • Participants of the GSC National Meeting (1st Session)
  • Participants of the Fostering Next-generation Scientists Program Science Conference 2019 (2nd Session)

■ Dates: November 17 (Sun), 2019
  1st Session (13:15–13:45)
  A talk by students attended the Global Science Campus (GSC)
  2nd Session (13:45–14:15)
  Activity reports of the Fostering Next-generation Scientists Program (FSP) Conference 2019

■ Venue: Agora Stage 1F, Telecom Center Building
We will award outstanding local practices that have solved social issues through science, technology, and innovation (STI), thereby aiming for further advancement of these practices and horizontal expansion to other regions facing the similar issues and further contributing to realization of SDGs.

Outcomes
- Horizontal Expansion to other regions
- Accelerating a stream of STI for SDGs
- Promoting next generations’ activities toward SDGs
- Development of local economy and realization of local regeneration

Selection Criteria:
In addition to the SDGs concepts, utilization of STI, innovative aspects, uniqueness, applicability, continuity, and storyline will be evaluated.

Entry: Jun.–Aug. 2019
Selection Term: Sep-Oct 2019

Awards:
- MEXT Minister Award
- JST President Award
- Next Generation Award
- etc., will be awarded.

Evaluation:
- Ceremony and Presentation: Nov 2019 at Science Agora
- Selection Term: Sep-Oct 2019
- Selection Criteria:
  - Innovative aspects
  - Uniqueness
  - Applicability
  - Continuity
  - Storyline

Initiatives aim to resolve social issues utilizing STI and achieve SDGs.
Winners of “STI for SDGs” Awards

➢ MEXT Minister Award: Japan Advanced Institute of Science and Technology (JAIST)
Practice: Sustainable plant dyeing enabling the detoxification of wastewater

➢ JST President Award: Minna-denryoku, Inc.
Practice: “Power with producers’ face” connecting renewable energy producers and consumers through “support” and blockchain

➢ Next Generation Award: Kumamoto Prefectural Amakusa High School, Science Team
Practice: How much did your regions’ sea level rise? An estimation of the rise in sea level caused by global warming, led by high school students

➢ Excellent Practice Awards
• The National Agriculture and Food Research Organization (NARO)
   Mitigating greenhouse gas emissions caused by agriculture and efforts for stable food production through technologies, thus adapting to climate changes
• i-Compology Corporation
   Promoting the achievement of SDGs through the use of bio-plastic composites
• Kochi University, Natural Sciences Cluster Agriculture Unit
   Sustainable improvement of wastewater management by the “Kochi family”: Development of new technology by collaboration of the industry, government, and academia, thus aiming for nationwide commitment
• Smileyearth Co.
   Bridging a local industry to the future by realization of an environment-friendly, stress-free production process from the birthplace of Japanese towel production.
MEXT Minister Award

Organization:
Japan Advanced Institute of Science and Technology (JAIST)

Practice:
Sustainable plant dyeing enabling the detoxification of wastewater

Outline:
➢ The practice of JAIST introduced a natural dye method that dyes clothes within 15 seconds at room temperature; this was the first time plant dyeing was used for synthetic fibers. Furthermore, they detoxified dyeing waste water by utilizing STI. The fashion industry is accountable for 20% of global industrial waste water; therefore, the environmental impact will be greatly reduced.
➢ They have presented a “new value” of plant dyeing at international conferences and developed new products by collaborating with major Japanese apparel firms. They are stepping forward to generate a social trend of shifting from chemical to natural dyes in the chemical fiber market.

Commentary from judges:
➢ The practice revitalized and expanded traditional industries by utilizing STI, which contributed to the achievement of SDGs related to the environment, industry, and community development.
➢ Seeking a new value of plant dyeing by adding storylines to products is also highly recommended
➢ It has significant potential for further development through the commercialization and enhancement of management.
Organization:
Minna-denryoku, Inc.

Practice: “Power with producers’ face” connecting renewable energy producers and consumers through “support” and blockchain

Outline:
- The practice established a “support” system through which consumers can donate a portion of their electricity bill to their chosen power stations and a tracking system that proves traceability of the power through the blockchain.
- They promoted renewable energy by creating a new value of electricity that is free to be chosen and by connecting power plants and consumers through direct purchase and sale of the power. Consequently, it contributes to the promotion of local communities and the power plants industry.

Commentary from judges:
- The visualization of electric power using a blockchain is a distinctive practice in both the level of technology and the STI application mechanism.
- The idea of adding “value” to invisible electricity is unique and significant and consequently leads to local revitalization. Its storyline is also highly evaluated.
Science Agora 2019 Pick-up Programs

Program for thinking about an ideal future
- Science for Peace—World peace creating by a large accelerator
- Experience of teleportation by ANA Avatar
- Superhuman Sports Session
- Program for the International Year of the Periodic Table of Chemical Elements
- Try a future vehicle RODEM
- Agora Citizens Forum “What kind of future will we live in?—The course of technology and humans living with AI.”

Programs for introducing good practices for assessing and solving social issues
- The “STI for SDGs” Award Ceremony and introducing good practices
- “Achieving SDGs by collaboration with science and technology” presented by the Council for National Research and Development Agency
- The awards ceremony for the 1st Brilliant Female Researchers Award (The Jun Ashida Award), etc.

Science Agora will create with the next generation
- Good Matching Creation Program—”Odaiba 100 Researcher’s Paper”
- International Collegiate Virtual Reality Contest (IVRC), etc.
Science Agora Collaboration Event 1

Science Agora in Sendai & Tohoku University SDGs Symposium is a collaboration forum sharing visions, themes, and topics of Science Agora and promoting regional activities.

Date: November 5 & 6 (Tue & Wed), 2019
Venue: Tohoku University Katahira Sakura Hall (Nov 5)
Sendai International Center Hall (Nov 6)
Host: Tohoku University Co-hosted: JST
Theme: Creating a “sustainable and heartful society” from Tohoku

Keynote Lectures:
Expectations for energy-related technologies: From experience in environmental administration
Hikaru Kobayashi
Visiting Professor, Department of General Systems Studies, Graduate School of Arts and Sciences, and Senior program advisor, the Research Center for Advanced Science and Technology, the University of Tokyo

JST Regional Industry-Academia-Government Collaborative Work Shop
“Plastic smart: Insight into the SDGs through the plastic waste problem”
November 6 (Wed), 15:00 JST, co-hosted by Tohoku University
Science Agora Collaboration Event 2

Science Agora in KOBE is a collaboration forum sharing visions, themes, and topics of Science Agora and promoting regional activities.

Date: November 9, 2019
Venue: Port Island Campus, Konan University
Host: KOBE Biomedical Innovation Cluster and Kobe city
Co-sponsored: RIKEN, Kobe University, Konan University, and JST

Theme:
Youth of the future: Future of Science and Science in Future

Keynote Lectures:
Part 1: Development of regenerative medicine: cells, surgery, and robots
Masayo Takahashi, CEO, VisionCare Co. (Senior Visiting Scientists, RIKEN Center for Biosystems Dynamics Research, Laboratory for Retinal Regeneration)

Part 2: Plants to fight: ingenuity for plant life
Professor Tetsuro Mimura, Division of Biomolecular Organization, Cell Function, Kobe University
Today’s Lectures

• Michio Kondoh (Professor, Graduate School of Life Sciences, Tohoku University)
  Research Leader

• Masaki Miya (Head of Department of Ecology and Environmental Sciences, Natural History Museum and Institute, Chiba)

[CREST]
Research Area: Establishment of core technology for the preservation and regeneration of marine biodiversity and ecosystems
Research Theme: Application of environmental DNA for quantitative monitoring of fish community and ecosystem assessment

They have developed a new monitoring method using fish-derived DNA (environmental DNA) found in seawater to determine the species composition and biomass of fish in the sea. The environmental DNA meta-barcoding for detecting inhabiting fish species in a bucket of seawater sample is the world-leading technology developed by CREST.

Ecosystem observation using the environmental DNA technology is expected to play an important role in understanding the current state of ecosystems, detecting abnormalities, and predicting the future on a global scale. In 2018, the eDNA Society (President Prof. Kondo) was established to promote environmental DNA research and its social implementation to realize a society in harmony with nature. These actions will contribute to the attainment of SDGs (especially in Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development) and the United Nations Decade of Ocean Science for Sustainable Development (2021–2030).