



10 year History of Science Agora



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Science Agora
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Shigeyuki Koide & Miyoko O. Watanabe

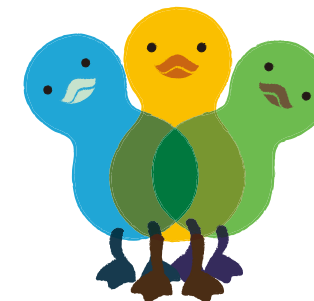


Science Agora is an open arena for people from different sectors who desire a future society consistent with science. Aggregated in this arena are independent, self-motivated individuals involved in activities that connect people to different areas, sectors, and different generations and nationalities. Science Agora is a platform for people to build a future society where science is inherently rooted through collaboration and mutual respect for diverse values.



Science Agora

Logo



Characters

The Logo expresses Science Communication being exercised in various different ways, expanding to influence each other and generate new values by mutual activities. Furthermore, the Characters were designed, hoping that the Science Agora will grow and be familiarized.

Science Agora

The 10 years of history

Let's look back the 10-year history of Science Agora from 2006 to 2015 through the many posters and pictures along with the main concepts!

HISTORY

Science agora was held for its first time in November 2006. At the time, the importance of science communication had been more widely beginning to be recognized while Japan's 3rd Science and Technology Basic Plan was carried out based on the concept that the science and technology that meets the needs of our society and nation and returning with various positive results. The various training seminars were started at the universities and science museums to foster the future science communicators. A variety of approaches were also taken by some research institutes, various organizations including NPO, and private sectors.

Science Agora was established to be a reliable foundation in order to make those activities all over the country to be not only transitory but sustainable and to achieve the healthy development of the science and technology in our country through those activities.

The history of the progressive development of Science Agora can be divided into three phases.



Pioneering Period

Scale expansion

The first phase is considered as the Pioneering period, wherein the best effort was made to spread the concept of science communication and Science Agora in our society. For the first Science Agora held in 2006, the attempt was made to gather the organizations and individuals, contributing separately all over the country, since the awareness for the science communication seemed still low in our society. This effort led to the establishment of new collaborations and enabled to have better expectations for the next year. In year 2007, its aim was to increase in the number of people who are highly interested in Science Agora. It was the first year that the executive committee was formed to start the open call for proposals of exhibitions and seminars. The international component was successfully brought into Science Agora such as the international symposium among Japan, US, and Europe organized by the executive committee in 2008. The duration of Science Agora was extended to four days in 2009 and the number of participants has increased to 8,705.



Science Agora in 2006 Provide a public square for interaction between science and the society



Year	2006	
Exhibition Period	November 25th [Saturday] – 27th [Monday]	
Agora's Movement	<ul style="list-style-type: none"> -The Birth of Science Agora -Co-hosted by Science Council of Japan (SCJ) Committee on Science and Society Sub-Committee on the Promotion of Science 	
Major Domestic Movement	<ul style="list-style-type: none"> -Third Science and Technology Basic Plan launched -Science Communicator Practical Training Program by the National Museum of Nature and Science launched 	
participants	1,500 - 2,000	
No. of Contributing Organizations	83	No. of Programs 100

Science Agora in 2008 Proposals from Japan for the future of the Earth



Year	2008	
Exhibition Period	November 22nd [Saturday] – 24th [Monday, Substitute Public Holiday]	
Agora's Movement	<ul style="list-style-type: none"> -Japan-US-Europe Symposium held -The first exhibition at National Museum of Emerging Science and Innovation (Mirai-kan), 1st floor exhibition hall 	
Major Domestic Movement	<ul style="list-style-type: none"> -The Nobel Prize in Physics and Chemistry awarded to Japanese scientists -WPI program launched 	
participants	6,109	
No. of Contributing Organizations	138	No. of Programs 123

Science Agora in 2007 Let's connect and switch to the future



Year	2007	
Exhibition Period	November 23rd [Friday, Public Holiday] – 25th [Sunday]	
Agora's Movement	<ul style="list-style-type: none"> -The executive committee established -The open call for proposals started -Co-hosted by Tokyo Academic Park 	
Major Domestic Movement	<ul style="list-style-type: none"> -The success of generating induced pluripotent stem cells (iPS cells) from human skin 	
participants	2,959	
No. of Contributing Organizations	124	No. of Programs 94

Science Agora in 2009 Proposals from Japan for the future of the Earth II



Year	2009	
Exhibition Period	October 31st [Saturday] – November 3rd [Tuesday, Public Holiday]	
Agora's Movement	<ul style="list-style-type: none"> -Extended to 4 days 	
Major Domestic Movement	<ul style="list-style-type: none"> -FIRST program launched -The administration reviewed by Democratic Party and prioritization of government programs 	
participants	8,705	
No. of Contributing Organizations	141	No. of Programs 147

The First Reform Period

Broadening Participation

The second phase is considered as the first reform period and focused on achieving diversity among our attendees. The year 2010 was the final year of the 3rd Science and Technology Basic Plan. In order to organize Science Agora as throughout-the-year activities and Mini Science Agora was held in Osaka and Tokyo on a trial basis. Also, the planning committee members were selected from among the public to open up access to our organization.

After the Great East Japan Earthquake of 2011, the severe natural disaster reminded Science Agora of its role to increase people's trust in the science and technology, and to serve as the venue of understanding the importance of establishing a better society and the mission of science and technology. The phrase Promotion of Science and Technology Communication Activities was provided as a part of specific actions in the 4th Science and Technology Basic Plan, which was started in this year. The Science Agora Award was also established in this year in order to achieve further improvement in a planning content and to promote further spread of the concept of science communication.

The following 2012, the Center for Science Communication was established in JST, and Science Agora was launched as a part of it. The topic proposal was addressed at the opening session to give the importance of the communication aimed at creating in addition to the communication aimed at conveying. In 2013, Science Agora worked hard to realize the communication aimed at creating through the main event, such as Seven consecutive workshop sessions.



Science Agora in 2010

Agora of science connecting to the future



Year	2010		
Exhibition Period	November 19th [Friday] – 21st [Sunday]		
Agora's Movement	<ul style="list-style-type: none"> Engaged in promoting the participation of political and administrative sectors. The committee members selected from the general public. Mini Science Agora held in Osaka and Tokyo. 		
Major Domestic Movement	<ul style="list-style-type: none"> The Nobel Prize in Chemistry awarded to Japanese scientists Outreach activities made mandatory for researchers who were awarded 30 million JPY or more public research funds 		
participants	5,934		
No. of Contributing Organizations	146	No. of Programs	145

Science Agora in 2011 Let's plant new seeds of science to recover from the disaster



Year	2011		
Exhibition Period	November 18th [Friday] – 20th [Sunday]		
Agora's Movement	<ul style="list-style-type: none"> Agora Award Established Included Tokyo Metropolitan Industrial Technology Research Institute, Tokyo Rinkai Fukutoshin Group as co-hosts. 		
Major Domestic Movement	<ul style="list-style-type: none"> Great East Japan Earthquake occurred The 4th Science and Technology Basic Plan started 		
participants	7,057		
No. of Contributing Organizations	183	No. of Programs	194

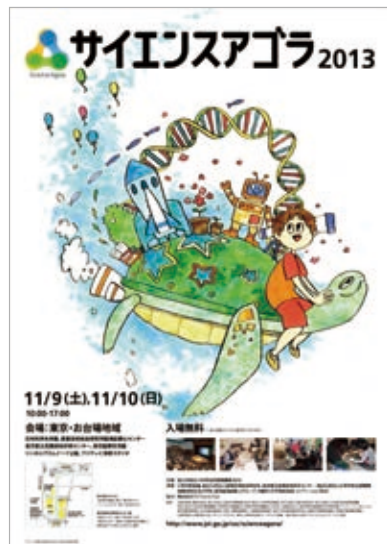
Science Agora in 2012

Let's find how you can associate with science



Year	2012	
Exhibition Period	November 10th [Saturday] – 11th [Sunday]	
Agora's Movement	·Shortened to 2 days	
Major Domestic Movement	·The Nobel Prize in Physiology or Medicine awarded to a Japanese scientist ·LDP returned to the administration	
participants	6,255	
No. of Contributing Organizations	191	No. of Programs 212

Science Agora in 2013



Year	2013	
Exhibition Period	November 9th [Saturday] – 10th [Sunday]	
Agora's Movement	·Integrated with Science and Technology Festival ·Included Fuji Television Network as collaborator	
Major Domestic Movement	·Tokyo selected as the host of the 2020 Summer Olympic Games	
participants	8,500	
No. of Contributing Organizations	212	No. of Programs 232

The Second Reform Period

Further involving scientists and science communities

The third phase is considered as the second reform period, wherein the effort was made to achieve further participation of scientists and scientific communities. That is continuing today, in 2015.

Science Agora has achieved steady growth as a public square opened to everyone. However, the organizers were highly aware that the participation of scientists and scientific communities was still significantly insufficient as well as the participation of the private sectors, medias, political and administrative sectors. Thus in 2014, the key personnel of the political/administrative sectors, the industrial sectors, and the scientific communities in both inside and outside Japan were invited through the network of JST, the organizer of Science Agora.

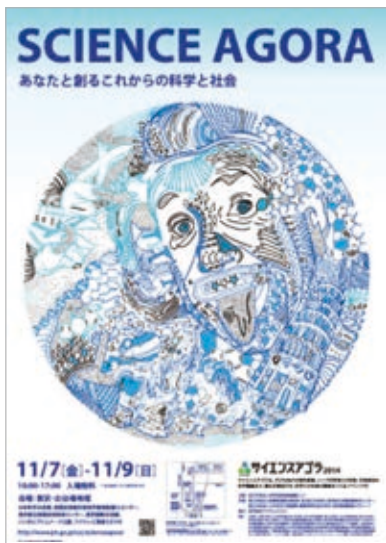
In 2015, Science Agora is challenging to overcome the issue that "Who and what the opened square named Science Agora is for" is still not sufficiently understood. First of all, "Let us build a society harmonized with science" has been set as Science Agora's grand vision and the required conditions for participation include the following; (1) harmonizes with our society, (2) contributes to science and technology (3) acts on own initiative (4) places a high value on the people-to-people connections with diverse expertise (5) can be open to the public.

After reconsidering the plan in 2010 aiming at developing into the throughout the year activities, Science Agora was held as an annual meeting in Odaiba area in fall in order to begin the preparation for building a connection with activities all over the country and for achieving the throughout the year activities.

The annual meeting was held to be the place where people can gather to take action, interact, build up connection to make movement together toward further development in each activity. The purpose of the public square was also clarified; the square to facilitate the communication and collaboration among a diverse range of stakeholders to build an even better society harmonized with science. Those basic principles of Science Agora were originally set at the time of its foundation, and it is believed that the principles have been consistently followed until today.



Science Agora in 2014 How can we come together to build relations between the future society and science?



Year	2014		
Exhibition Period	November 7th [Friday] – 9th [Sunday]		
Agora's Movement	<ul style="list-style-type: none"> ·The participation of research community promoted JST organizationally participated ·Keynote sessions started ·Duration changed back to 3 days ·Many VIP from overseas invited 		
Major Domestic Movement	<ul style="list-style-type: none"> ·Full-scale preparation of the 5th Science and Technology Basic Plan started ·The Nobel Prize in physics awarded to Japanese scientists 		
participants	10,142		
No. of Contributing Organizations	172	No. of Programs	188

Science Agora in 2015 Let's build a society harmonized with science



Year	2015		
Exhibition Period	November 13th [Friday] – 15th [Sunday]		
Agora's Movement	<ul style="list-style-type: none"> ·The purposes, visions and application requirements clearly addressed ·Topics predetermined ·Keynote selected from public proposals 		
Major Domestic Movement	<ul style="list-style-type: none"> ·The Nobel Prize in Physiology or Medicine, and Physics awarded to Japanese scientists 		
participants	9,145*		
No. of Contributing Organizations	169*	No. of Programs	195*

*Included a satellite event on 3rd October.

Science Agora 10 Year Anniversary Interviews

Presenting interviews of program contributors
In Commemoration of Science Agora 10 Year Anniversary.

Yokoyama Masatoshi

I believe that science communication is for everyone to share and solve problems in science.

Science Agora is an open platform for science communication that links science and society. We listened to Mr. Yokoyama Masatoshi of the #phdjp Science and Society Working Group who has participated in Science Agora from the first meeting in 2006. He has had diverse actions on science communication.

Masatoshi's group conducted various sessions in Science Agora with the aim of developing a better relationship between society and science experts such as researchers and engineers. Particularly, the workshop named "Frank Talk" where they consider the negatives or dark aspects of scientific research and relations between science and society has been held for 10 years successively.

Masatoshi explains the purpose of his workshops, "In our workshops, we would like to face up the negatives or dark side of science, with their theme setting as unauthorized use of research funds, career development of researchers, science and technology policy, so that we can share the significance of science." He further explains that "I believe science communication is to share the issues for various problems in science with specialists and other people, to work on the issues together, and to promote the series of activities" citing the definition at the first Science Agora.

In addition, Masatoshi told us that he realized one thing once again through the 10 year's serial workshop experiences.

He recognized that those who concerned in science were also human beings, same as the people watching the activities from social side. He also says, "This matter is apt to be forgotten when science is viewed in a critical way." "For mankind, science has an aspect of bringing agony and evil, as well as attraction and significance. I believe, however, the power to overcome those negative things comes from science, scientists, society, and citizens that support scientists," said Masatoshi.

"We will continue the interaction with the people who bear the popularization of science, activities to create the platform for interaction, and workshops as a matter of course to develop a better relationship between science and society." (Respecting his preference, the editors printed his name by the order of family name and first name.)



Masatoshi is also working on activities to link the people who are making efforts to popularize science at the grassroots level throughout Japan.



November 14(Sat.), 2015
Frank Talk on Research Fund Issue -to do research happily-

Yoshio Honma

Hope many people will become interested in atomic and molecular science and computer science through Science Agora.

Science café, where people can casually talk about science while enjoying coffee, has become more popular in recent years around Japan. We talked with Yoshio Honma who has been running science café in Niigata and a member of the Science Communication Section of the Society of Computer Chemistry, Japan (board member) which has been participating in Science Agora since the first time.

He says that his unchanging feeling for Agora since his first participation is that Agora provides continuous learning meaning that visitors to Agora can look up topics that they become interested in when they return to their homes rather than temporarily becoming interested in these topics at Agora.

He says, "People will become interested in Nobel-Prize winning research, for example, if people in the field of science come together and excite the public to become interested in science. People will voluntarily learn what they are interested in".

In regards to his research field, atomic and molecular science and computer science, which are somewhat unpopular, he says, "Although these fields are not well known, they are deeply imbedded in our lives such as forecasting of the paths of typhoons and designing a new remedy for influenza. I appreciate that many visitors learned interesting aspects of these fields and their necessity in Science Agora where visitors can encounter tangible science." He continues, "Because my Society puts importance on approaching to the young generation, Agora is a valuable opportunity to meet many people including children who come to Science Agora every year and listen to advices on learning programming and those who purchased model sets after they built molecular models and also show our works to young people. I appreciate that I have been able to participate in Science Agora that has attracted many visitors for ten consecutive years. Meanwhile, I feel that the number of grassroots participants who participate in Agora with their own expenses has been decreasing every year. I hope that more valuable opportunities will be given to these participants and that there will be more opportunities outside Tokyo to feel science."



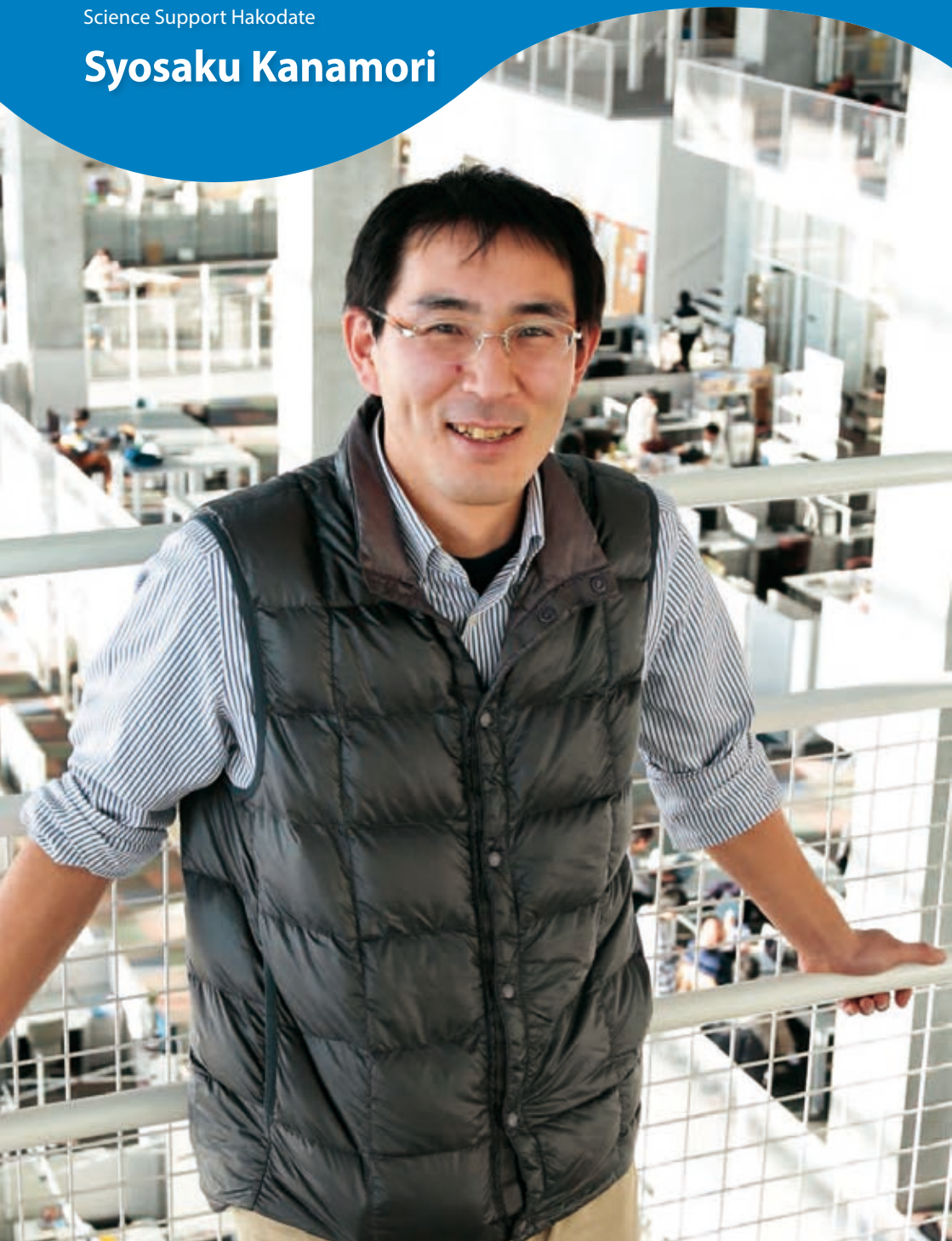
Honma is describing invisible molecules and biomolecules using custom-made models so that people can easily understand them.

"Science Agora 2015" exhibition



November 14(Sat.) and November 15 (Sun.), 2015
Countless number of particles and lights -Shapes and movement of particles-

Syosaku Kanamori



An opportunity to think about regional efforts while comparing them with activities conducted around Japan

Saying, “Coordinators are actually all-round men,” Syosaku Kanamori is working as a coordinator of Science Support Hakodate, an organization that provides scientific communication activities and builds networks in the Hakodate region. His main task is to build a flow of citizens and experts to promote scientific communication activities in the region, with Hakodate International Science Festival at the center of his work. He is assigned to a various types of work such as budget planning, all kinds of negotiations and purchase of goods.

He first participated in Science Agora in 2008. It started when he listened to a symposium participated by the mayor of Hakodate and others at the start of launching a science festival in Hakodate. He has been participating in Agora since then, to interact with other participants from all over Japan.

For three years since 2011, he exhibited a booth at Agora with citizen volunteers to introduce their activities. “I wanted citizen volunteers to learn about activities conducted around Japan; it was also a good opportunity for us to look back at our own activities”.

Collaboration with the National Cancer Center that he met in Agora changed Syosaku’s activities as a coordinator. “At first I merely thought that we wanted to do something together with them when health was one of the topics at our festival, but then it developed to be the Tobacco-free Kids in Hakodate as a regional smoke-free educational program. After the trial in Hakodate, it was extended to Kumamoto and onto Ehime. We are also still working on it in Hakodate”.

He says Science Agora is a valuable venue for organizers of science festivals to interact as well as for members from Hakodate region to meet people from different regions. “I think we created a cycle through Science Agora that we think about regional efforts while comparing them with activities conducted around Japan and new interactions emerge from participating in new challenges.”



Syosaku is engaging in science communication activities and building networks in the Hakodate area.

"Science Agora 2015" exhibition



November 14(Sat.) and November 15 (Sun.), 2015
Hakodate International Science Festival -For a better society with viewpoints from rural cities-

RIKEN, Institute of Physical and Chemical Research,
Nishina Center for Accelerator-Based Science
User Liaison and Industrial Cooperation Group,
User Support Office, technical staff

Narumasa Miyauchi



Awakening of interest in atomic nucleus on the basis of iron-on beads I would like to increase the number of children who want to be scientists by devising a method of conveying research information.

The right to name the 113th element was acquired by Japan, which is the first time in Asia, and this issue attracted wide attention on New Year's Eve in 2015. An element is a component of a substance. A Japan-originated element is added in the periodic table of elements that we learned at junior and senior high schools, and the name has become a major concern. The Nishina Center for Accelerator-Based Science of RIKEN (Nishina Center) brought out the 113th element. At Science Agora in 2015, there was a hands-on corner where this 113th element was made using iron-on beads, and a model of GARIS, equipment that detected the 113th element, was exhibited. We listened to Mr. Narumasa Miyauchi of the Nishina Center, who organized the exhibition.

Narumasa said, "We were involved in the exhibition in Science Agora for the first time in 2009. From the following year, the Nishina Center independently participated in the exhibitions, and we planned to display the 3-D chart of nuclides that showed the periodic table of elements in more detail. The 3-D chart of nuclides is a solid model that intelligibly shows all of an atomic nucleus constituting an element. An atomic nucleus tells us about the history of the creation of the universe. We thought of assembling the 3-D chart of nuclides with Lego bricks to let children develop a friendly feeling toward the atomic nucleus. To do that, expertise is necessary, and therefore, we asked researchers to make design drawings and asked other researchers at the institute to participate in assembling the bricks after their own work. Thanks to their cooperation, we were able to complete the task in a week. The hardest part of the work was to collect 30,000 pieces of Lego bricks (smile)."

He said that we cannot see an atomic nucleus with our eyes but hopefully this field becomes as attractive as astronomy, including space exploration using rockets that is a little bit far from our daily lives. Dr. Kosuke Morita, a group director of the research group that succeeded in the synthesis of the 113th, also attended Science Agora in 2015. "The attractiveness of the exhibition booth from Nishina Center is to see researchers who are usually present on the job site. If we exhibit in 2016 too, we want to consider a plan to promote children to aim at being a scientist in future with the theme of the 113th element."



Narumasa introducing the superconducting ring cyclotron in the heavy-ion accelerator facility (Radioactive Isotope Beam Factory (RIBF) at Nishina Center, RIKEN.

"Science Agora 2015" exhibition



November 14(Sat.) and November 15 (Sun.), 2015
Let's make the 113th element! -Japan-originated new element-

Marekazu Ohno



I want more Geoparks to participate in Science Agora.

A Geopark is a natural park where regions with rich natural features such as geological formations, rocks, terrain, volcanoes, and faults are perceived in relation to the ecosystem and the lives of people. Japan now has Geoparks in 39 areas, including eight UNESCO Global Geoparks.

We interviewed Marekazu Ohno of the Unzen Volcanic Area UNESCO Global Geopark Japan, which has been participating in Science Agora every year since 2010.

Marekazu and his colleagues from other geoparks have been hosting an experience-oriented program called “the production of a one-of-a-kind rock specimen” since 2013. In the program, participants create their own rock specimen by pasting various types of small rocks on a map of the Geopark while listening to instruction for 30 minutes. This program is widely popular among elementary school and junior high school students due to the very attractive contents, and has won the Science Agora award twice.

Marekazu stated that just picking up rocks and pasting them on a panel only makes it a craft class and not worthwhile to present at Science Agora. The important thing is to explain how rocks are related to our lives.

Children love rocks. But many of them stop at the point where they find rocks with cool shapes or smooth textures. We are relating rocks with more advanced scientific phenomena and geoscientific aspects so that more people will become interested in rocks, their local area and the Earth.

One attractive aspect of Science Agora is that he can very efficiently interact with people with a variety of backgrounds from different specialties. Their participation in Science Agora formed connections among multiple Geoparks, and Geoparks in other regions are also starting to develop programs for creating rock specimens. In addition to Choshi, Oita Bungo-Ono, Mine-Akiyoshidai and Shimonita, he wants more geoparks to participate in Science Agora. He would also like to conduct the Odaiba geotour in the Odaiba area as a separate event.



Marekazu is hosting various programs at local elementary schools in Shimabara peninsula such as the program for creating rock specimens.

"Science Agora 2015" exhibition



November 14(Sat.) and November 15 (Sun.), 2015
Create a one-of-a-kind rock specimen -Enjoy Geoparks!

Tomoka Nagasawa



“Science is there to make people happy.” It depends on the individuals as to what they feel when they encounter science.

Shizuoka Science Museum Rukuru participated in Science Agora for the first time in 2010 when it was selected for the network building project of Japan Science and Technology (cooperation of advanced science museums). Tomoka Nagasawa, director of the museum says, “I participate in Science Agora every year with my own themes. For example, in 2014, I looked for good ideas for exhibitions and projects with a theme of ‘scientific approach to small children.’ As a result, I found a hands-on science exhibition, ‘mini EXPLO, the touchable and mysterious mini-museum,’ which allows the participation of small children. Our museum also had the exhibition of the mini EXPLO in 2015. I am participating in Agora every year while looking for good connections with people and organizations to make the citizens of Shizuoka city become more interested in science.”

Science Picnic, hosted by the Shizuoka Science Museum, is a major event where citizen groups working to promote science, volunteers, and public educational institutions come together and present their activities while interacting with each other. The sixth picnic is going to be held in (2016), and Tomoka is especially devoted to it.

“The first Science Picnic was held on March 12, 2011. The Great East Japan Earthquake occurred on the day before, and we asked ourselves again and again whether to go on with the event in such difficult time, and whether it was ethically acceptable. We could not reach a conclusion until the morning of the first day of the event. Yet, the ground for the final decision was that science was there for people to become happy. I told myself that I should go on with the event especially during the difficult time.”

Tomoka, a former junior high school teacher, thinks that an ideal attitude of science communication is to think that there is no single answer. Science museums and Agora are places where a variety of people from small children to elderly people gather. They are different places from schools; this is why it is up to individual visitors what they feel when they encounter science. There is no right answer. An important thing is that participants can freely feel the pleasure of science through their own experiences.”



Shizuoka Science Museum Rukuru has many exhibitions that children can actually touch and experience.

“Science Agora 2015” exhibition



November 14(Sat) and November 15 (Sun.), 2015
Life is small -Smart-phone microscope and the future of citizen's science

Masakazu Takeshi



Exhibitions have been advancing every year by focusing on the visualization of electricity. Parents and children finding how fun science is together will keep children interested in science.

Denki Rika Club is being operated by the members of the Institute of Electrical Engineers of Japan. The Club is working to prevent children from losing interest in science and increase children and teachers who love science. The Club has been participating in Science Agora for five consecutive years since 2011 jointly with the EV (electric vehicle) Group of Tokyo Polytechnic University. Masakazu Takeshi, the chief in charge of the 2015 Science Agora, comments that the Club is coming up with good ideas to visualize electricity and transmit interesting aspects of electricity to children.

“Because electricity is invisible to human eyes, children tend to think that invisible means they cannot understand it. The exhibitions of electric vehicles have been popular since our first participation. We then tried to improve them to teach children the mechanism of electric vehicles in tangible ways. The contents of the booths are also advancing every year, such as letting children build electric motors.”

The booth won the title of the most popular booth among visitors in the 2013 Science Agora and received the Participants Award. The unipolar motor that could be easily built only using a battery, wire, and magnet attracted the attention of children and also researchers from outside of Japan. Masakazu also comments that people he met in Agora expanded the activities of his Club.

“A person working on the Environment Fair in Edogawa-ku who saw our booth in the 2013 Agora requested that we present the same booth in their Fair in the following year. Opportunities for us to support activities of other educational institutions also increased through Agora, such as that we received a request from Nishinasuno Library of Nasushiobara, Tochigi to host a summer science craft class.”

Our lives cannot be separated from electricity. Children losing interest in science while the overall child population is decreasing might result in a serious consequence that the future population of engineers will be very small. Masakazu thinks that an important point of keeping children interested in science is to let parents and children encounter the pleasure of science and the importance of electricity.

“A good aspect of Agora is that children in elementary schools visit the site with their parents. When parents watch what their children encountered at Agora, they can talk about it together at their homes. If children visit Agora without parents, they just have fun there and that is all. An extremely important point for children to become interested in science is that adults encounter science with the children.”



Though they may look similar, the experiment devices are being improved every year to better visualize electricity.

"Science Agora 2015" exhibition



November 14(Sat.) and November 15 (Sun.), 2015
Use natural energies -Produce, store, and move electricity-

Yoshiaki Araki



Through the fun tessellation activity, discover the joy of science.

Tessellation (tiling), which is well known through the artwork of the Dutch painter, Maurits C. Escher, refers to the covering of any surface with a pattern of identical flat shapes. The Japan Tessellation Design Association, which promotes the study of design using tessellation and presents the artwork through its creative activities, has been participating in Science Agora since 2011. The representative of the Japan Tessellation Design Association, Mr. Yoshiaki Araki spoke to us.

“Tessellation can also be seen as the laws of nature in the various scientific properties, for example in the molecular structure. We present tessellations that can be played by anyone, such as puzzles, with recognizable figures, including animal patterns familiar to our visitor, so that they can develop the joy of science through the fun tessellation activity,” said Yoshiaki.

In the first place, the Association decided to participate in Science Agora in order to familiarize people with the tessellation design and promote their activities. Then, “We gradually began to focus on cooperation with other participants in Science Agora,” said Yoshiaki. Their participation over the past few years indicates their interest in the application of tessellation designs in scientific approaches.

For their exhibition in 2015, Nanocarbon Puzzle was created in collaboration with Prof. Kenichiro Itami of Nagoya University, who is a researcher of the nano carbon substance that has been discussed as a next-generation material. According to Yoshiaki, such collaboration with the various scientific fields will be continued in the future, and its results will be presented.

Yoshiaki also believes that interaction with the visitors in Science Agora inspires him a lot for his artwork. “Not only children, but many returning visitors are looking forward to seeing our work. The simple questions and conception beyond our expectation from those visitors can be transformed to the significant scientific discovery.” He has expressed his effort to establish the framework for adopting those ideas and putting them into practice. “We will continue to promote the practical application of tessellation in cooperation with the various fields of science. Moreover, we want more people to know the joy of the science through the fun tessellation activity.”



The collection of colorful and charming tessellations with patterns of a parrot and fish. They were made with the design by which anyone can find the joy in tessellation and science.

"Science Agora 2015" exhibition



November 14(Sat.) and November 15 (Sun.), 2015
Mystery of Shapes and Space -Have fun with tessellation-



We want to share the information about the iPS cell to a wide variety of people without misunderstanding.

Dr. Shinya Yamanaka, winner of the Nobel Prize in Physiology or Medicine, is the director of Center for iPS Cell Research and Application (CiRA), Kyoto University. CiRA participated in Science Agora in 2012, 2014, and 2015.

Dr. Hiroyuki Wadahama from International Public Communications Office of CiRA talked about their public relations (PR) activities concerning the iPS cell and their relationships with Science Agora.

The word iPS cell is widely known, but they face a variety of different challenges and ethical issues to overcome in the journey to realize practical applications of the iPS cell. Under such circumstances, Hiroyuki insists on the necessity knowing how the general public thinks about the iPS cell and what kind of information they have so that CiRA can share information about the iPS cell to a wide variety of people without misunderstanding.

CiRA is trying different methods in Agora so that people can easily understand information about the iPS cell. CiRA created a corner for people to experience Hands-On with Stem Cells!, a game to trace the generation of the stem cell in 2014. Hands-On with Stem Cells! later became a commercial toy for use in educational institutions. CiRA showed an exhibition named Nazotoki iPS cell (iPS cell quiz) in 2015 to introduce the current standing of iPS cell research in posters and gave quizzes so that participants could look for answers in the posters. CiRA developed an application titled iPS Master where users can become a virtual iPS cell researcher, which is now released on the web.

Meanwhile, Hiroyuki says, "Agora inspires me a great deal as an opportunity for me to gather information about the latest scientific communication methods." He says he first realized what science communication was when he participated in Agora. He thinks that CiRA would like to actively organize science cafés all over Japan in the future.

"We would like to use Agora as an opportunity to build relationships with entities all over Japan when we try to transmit information to people. We want to share the information about the iPS cell to a wide variety of people without misunderstanding."

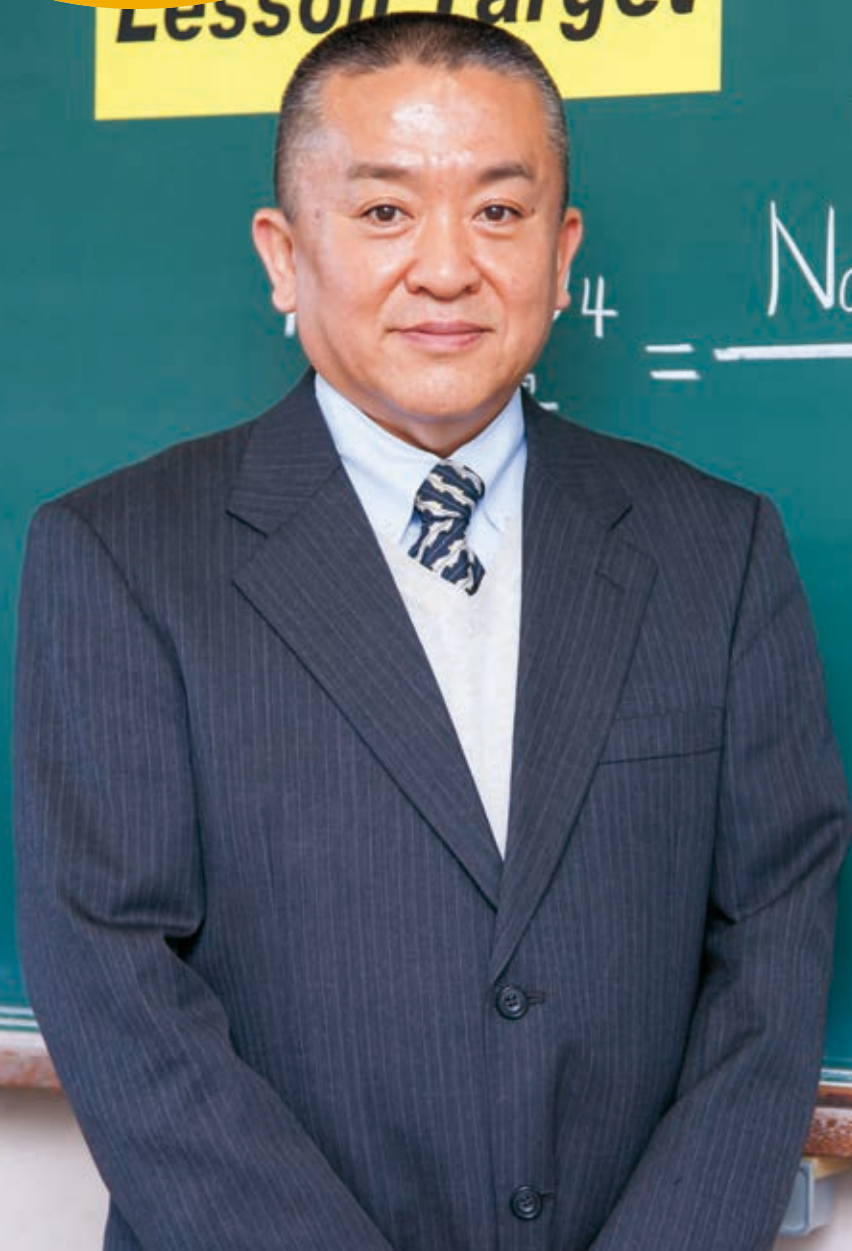


He wants the Hands-On with Stem Cells! to be used in educational institutions including SSH(super science high school).



November 14(Sat.) and November 15 (Sun.), 2015
Nazotoki iPS cell(iPS cell quiz)

Koji Nakashima



Students voluntarily enjoy participating in the debate from the preparation to the organization of the debate.

Gifu Prefectural Gifu Norin High School became a designated Super Science High School (SSH) in 2012 and started participating in Science Agora that year. The school only observed Science Agora in 2012 but had hosted a debate with the theme, “Is the genetically modified food safe?” with the participation of the audience since 2013.

“Twenty students, which are about half of Bio-engineering Department, participate in Science Agora every year. They form one group which supports the theme and another group which is against the theme. The audience joins these groups, and each group presents their opinions. The number of audience who participates in the debate is increasing every year, and the participants are gaining valuable experience they cannot encounter in Gifu.” So says Koji Nakashima, the teacher in the Bio-engineering Department of this school. “We all agree that we will not reach a conclusion in this debate. I hope that participants can recognize the benefits and harm of genetically modified food while expressing their opinions from their standpoints.”

Students seem to be motivated to participate in the debate. “I thought students would be hesitant and would not talk much, but they happily and voluntarily participate in the debates. The debate is held on Sunday. So we leave the school Saturday morning. When we arrive, we participate in other exhibitions and seminars of Science Agora in the afternoon. We start preparation at night. Students enjoy talking with people they meet during the participation. Sometimes we receive pamphlets from companies that I do not know. When I ask my students, they tell me that they met the person from the company in Science Agora.”

Gifu Prefectural Gifu Norin High School has been visiting the Philippines since 2013 as an overseas training program in the International Rice Research Institute (IRRI), an institute of the University of the Philippines. “IRRI is the most historic research institute studying rice in Asia. About ten students from our school are participating in this training program. One of the advantages of becoming the SSH is that we can let students encounter these experiences, and we can more easily work with universities. I think students became more motivated. I believe that our participation in SSH is meaningful in this sense.”



Koji says in terms of the discussion theme, “It is fine because we cannot reach an easy conclusion.”

"Science Agora 2015" exhibition



November 15 (Sun), 2015
SSH Student Debate “Is the genetically modified food safe?”

Let us build a society harmonized with science ~Science Agora's Another Challenge in the 10th Year~

Shigeyuki Koide

President of Japanese Association of Science & Technology Journalists

Miyoko O. Watanabe

Deputy Executive Director, Japan Science and Technology Agency
Director of Center for Science Communication

A forum of scientific communication, Science Agora is now trying to be born again.
What they are aiming is to become the place where everyone talks about our society with the language of science.

Koide: As a science journalist, I have never covered a story about Science Agora. It was two years ago when I actually participated. I was surprised by the number of interesting programs but what was the journey so far like?

Watanabe: It was ten years ago, in 2006 when it was held for the first time. The purpose was "To create an agora to connect science and society." It was established to create a place for discussing what the relationship between science and society should be.

Koide: Science Agora has a strong image of a scientific event in which families can enjoy but initial purpose was not just about this, right?

Watanabe: A number of people gather once a year; therefore, programs for people to enjoy science and experience fun science are also important. Exhibitions by universities, public research institutes, and companies have increased, and the last year, the number of participants exceeded 10,000. But we started to think that, instead of holding an event which is just fun, we want to review Science Agora's original purpose again. We put our thought of squarely dealing with the relationship between science and society into "Let us build a society harmonized with science," which we uphold as our vision from this year.

Koide: Science Agora as a place to experience the joy and greatness of science became hugely successful. Even though it is now internationally recognized, there is some part that you have not achieved yet.

Watanabe: An event that pointed it out occurred in 2011. It was the Great East Japan Earthquake. Until then, many people believed that scientists and engineers were the ones who would enrich our lives. But by taking a cue from the earthquake disaster, distrust of scientists and engineers increased.

Inadequacy on the side of the ones talking in science built up anxiety during the Great East Japan Earthquake

Koide: I, too, realized that in the news report scenes. The incident at Fukushima No. 1 Nuclear Power Plant was the problem that technology could not respond to the natural disaster but what triggered a sense of deeper uncertainty



“ We would like to broaden people's perspectives who can talk about society with the language of science (Watanabe) ”

was the way of conveying/disclosing the scientific information. While opinions on health effects by low dose radiation were divided among scientists, the scientific community neglected to transmit convincing information. As a result, a spiral of concerns was created and public concerns fluctuated with mass media news reports, which heightened concerns.

Watanabe: Information deficiency caused doubts. The fact that scientists, until then in Japan, had overwhelmingly less experience of conducting science communication activities on the spot was also the cause.

Koide: Discussions by those who were involved in science communication until then were preceded by the motive of how they could convey their study outcomes. The experience of facing concerns about science that people are actually having was overwhelmingly less. The new Science Agora needs such an approach to society.

Watanabe: Yes, this is very important. That's why we redefined Science Agora this year. The new definition is "The collective term of agoras that connects science and society opened for everyone." It means that those who gather in an agora are not only scientists who provide knowledge and citizens who are being taught.

Koide: Everyone means all of the stakeholders who are living in society with science, having problems respectively, and conducting economic activities, right?

Watanabe: That's right. By taking down fences, the places where science and society meets will significantly increase. And I would like to expect that various kinds of science communication will be generated from there.

Koide: The science communication that will occur in the re-defined Science Agora will be "diverse" and "multi-layered." Is there any symbolic program?

Watanabe: This year, we have set three themes that are important for science and society. The first one is light that

is familiar to everyone. The year 2015 was also the International Year of Light, and we would like to introduce how light has been helpful in everyday life and how technologies have been progressing. We also would like to show the fusion of science and different fields by exhibiting the work in which music is interlocked with light.

Koide: That's good. In Japan, science is thought to be something special but in Europe, science is one of cultures. There are effects that people mutually get stimulated and something new will be born. I would like people to cultivate the perspective that goes beyond the boundaries of professional territories.

Watanabe: The second theme is the Cyber Society, and I would like to expect deep discussions on how society will accept the most advanced information technology. The third one is the next Science and Technology Basic Plan that sets the country's direction of the science and technology policy and if we can discuss with people from various fields, that will be great.

We would like to aim for a true Science Agora where people gather and which develops people

Koide: One of the appeals of Science Agora is that it is the place where people from different fields gather. For example, people from totally different areas sit around a table in the hall (cafeteria) at Oxford University. And you have to sit next to a different person at the next meal and that is the rule. They say that they come up with various ideas by interacting with people from different areas. Such a degree of mental freedom is necessary for creative work.

Watanabe: Actually, there is a study report saying that innovation cannot occur if people from narrow areas gather. I would like people to use Science Agora where a diversity of people such as researchers gathers from around the country.

Koide: I think it is also important for scientists to have broad knowledge and perceptions. In Japan, I often hear they say, "I'm specialized in this," and "I will talk about my specialty but I cannot talk about anything other than that." It seems that they are honest but this will lead to losing trust in scientists. In particular, those who assume leadership in organizations have a wide range of responsibilities.

Watanabe: Certainly, development of leaders in the scientific community who can see things from a higher perspective on the latest science and technology has been delayed in Japan.

Koide: When a serious problem caused by science and technology occurs, if those who have a wide range of knowledge about science make convincing explanations

“ Development of leaders in the scientific community who have a broader perspective and values is also an important issue (Koide) ”



to people, they can minimize the social disruption. For example, after the incident at Fukushima No. 1 Nuclear Power Plant, specialists did not provide information and repeated evasive explanations. At that time, Sir John Beddington, who served as the chief scientific adviser for the British government, sent a message that there was no need to evacuate from the metropolitan area of Tokyo while comparing the case of the incident at Chernobyl Nuclear Power Plant.

Watanabe: If detailed information to the extent possible was provided in an easily understood manner like that, I think that distrust in scientists would not have grown this much.

Koide: I asked Sir John, "Why could you send an important message during the confusing period?" He told me, "In UK, when BSE problems occurred around 1990, confidence in the government and science and technology was ruined because wrong information, such as BSE does not infect people, was provided. We spent twenty years rebuilding the relationship between society and science." I assume this experience generated that message.

Watanabe: What was most needed in rebuilding?"

Koide: Sir John's answer was to rebuild the communication network connecting society, scientific community, media, and the government, to regain public confidence, and to have citizens understand the nature and role of science. Education for the younger generation is of utmost important for that.

Watanabe: First, it is for the scientists to change themselves. And in order for citizens to be able to think about society and science by themselves and to think and choose their actions, it is important to provide various opportunities for the younger generation. Science Agora would like to continue supporting such approaches.

Koide: Yes. It would be great if you could increase programs in which young people who are in their 10s and 20s are main focus. I also would like it to be the place where people from various areas interact with each other under the theme of science. Discussing methodologies of news reports and media would be exciting, too. Is there any program for that?

Watanabe: Unfortunately, there will be none in this year. But let's do it in the next year (laughter). By accepting all kinds of different opinions, Science Agora would like to keep growing.

From the November 2015 Issue of Nikkei Science (released on September 25)