

af News

2013 Blue Planet Prize Awards Ceremony and Congratulatory Party

The Asahi Glass Foundation awarded the 22nd annual Blue Planet Prize in the ceremony held at Palace Hotel Tokyo on October 30, 2013. The winners of the prize this year were Dr. Taroh Matsuno of Japan and Dr. Daniel Sperling of the United States of America. The ceremony was graced by Their Imperial Highnesses Prince and Princess Akishino, along with numerous distinguished guests, including ambassadors and representatives from government, academia, and business.

The ceremony opened with a commemorative film that praised the deep insights and great wisdom that will specify and direct us toward the future of this blue planet of life. Mr. Tetsuji Tanaka, Chairman of the Foundation, presented the introductory remarks, followed by a report on the selection procedures and an introduction of the award winners by Dr. Yoshihiro Hayashi,

Chairman of the Selection Committee.

After the remarks from Prince Akishino, a congratulatory message from Prime Minister Shinzo Abe was read by Mr. Tsuneyoshi Tatsuoka, Vice-Minister of Economy, Trade and Industry. As representatives of the countries of the winners, Dr. Akito Arima, Professor Emeritus, Former President, The University of Tokyo, and Mr. Kurt Tong, Charge d'Affaires ad interim of the United States of America, also complimented the laureates on their dedication to environmental issues and their many accomplishments.

The Awards Ceremony was followed by a Congratulatory Party. Well-wishers surrounded Dr. Taroh Matsuno and Dr. Daniel Sperling throughout the evening, helping them celebrate the occasion, while toasts were proposed in recognition of their tremendous achievements.



Prince Akishino offers remarks at the Blue Planet Prize Awards Ceremony



Dr. Taroh
Matsuno



Dr. Daniel Sperling

Learn from nature, grow nature's blessings and make Here we introduce scientists who have set an example, and

Remarks Made in Accepting the Blue Planet Prize

Dr. Taroh Matsuno



It is more than 50 years since I became interested in meteorology and decided to continue research in the graduate school. There I spent a year and a half with Dr. Syukuro Manabe, who received the 1st Blue Planet Prize. Dr. Manabe went to the United States,

invited by Dr. Smagorinsky of the National Weather Service. He then pioneered research on the climate and its changes using computer simulations, and since then has led the world in this new field.

After the mid-1980s, ozone-layer depletion and global warming became international political issues. In Japan, it was believed that research of the global environment should be strengthened, and plans were put in place for establishing new research organizations.

Since I had long believed them to be necessary, I actively engaged myself in a number of such organizations and projects with the cooperation of my colleague Dr. Akimasa Sumi.

The greatest project among them is the one associated with global warming prediction using the Earth simulator, the computer exhibiting the highest performance in the world. We were suddenly given a huge computer and found the tasks extremely difficult, but thanks to appropriate judgments of research leaders and dedicated efforts by young researchers, we were able to move to the world's forefront. The Blue Planet Prize I am receiving this time, I believe, is given to me as a representative of all the researchers who have accomplished the difficult tasks. I would also like to express my gratitude to the concerned people for giving me an environment for conducting a world-leading research.

In September, the Physical Science Basis for the Fifth Assessment Report of the IPCC was made public.

Progress has been made in some aspects as compared with the Fourth Assessment Report published in 2007, but many issues remain unresolved concerning forecast of climate change. While renewing our awareness on the difficulty of this problem, we are determined to continue working with partners all over the world under the belief that solving the problem must not be an impossible task. Progress of the research may be perceived as overly slow and frustrating, but slow progress is inevitable in any research. I sincerely hope that you will continue to support us patiently and watch our progress.

Dr. Daniel Sperling



Many of my heroes have won this award. I am humbled to join this distinguished group. Whatever I have accomplished is due largely to my many brilliant and passionate colleagues and students. I have benefitted from their

extraordinary contributions.

My focus, as an academic and as a policy maker, is climate change, the greatest threat to human civilization. We humans continue to consume more energy year after year—most of it high-carbon fossil energy. This year, for the first time in human history, the concentration of carbon dioxide in the atmosphere exceeded 400 parts per million. As the world grows more affluent, we will consume even more resources and generate even more greenhouse gas emissions. If this profligate consumption of unsustainable energy continues, the concentration of carbon dioxide in the atmosphere will continue to increase. The future of the human race is at risk.

Is it possible for wealthy countries, including Japan and the United States, to curb their appetite for fossil energy—to play a leadership role in developing and adopting new low-carbon life styles?

The answer is certainly yes. The future is not hopeless. Solutions are all around us. New technologies and new behaviors will transform our cities and energy systems. In the field of transportation, a topic to which I have devoted my career, the fundamental challenge is to provide high levels of mobility, comfort, convenience, and safety without consuming huge quantities of resources, especially fossil energy. We need to reverse trends and patterns of the past 100 years. We need policies to stimulate innovation and to encourage changes in behavior.

Inspired by my brilliant colleagues, by my many passionate students, and by this Prize, I am committing the rest of my career to this cause—to leverage the tremendous reservoir of knowledge embedded in universities to create more science-based policy to avoid the disaster of climate change. It is not easy, but with great effort we can recover our healthy blue planet.



Selection Rationale Dr. Yoshihiro Hayashi, Chairman of the Selection Committee

Dr. Taroh Matsuno

Dr. Matsuno has produced major achievements in theoretical research on climate science, following which he has demonstrated his leadership in developing climate models, and played crucial roles in allowing the world to heighten its understanding of global warming and climate change. As an outstanding meteorological scientist, Dr. Matsuno studied dynamic meteorology and made specific theoretical investigations and predictions on the motion of equatorial waves created by atmospheric movement in tropical regions. Dr. Matsuno's globally noted climate model that he and other researchers developed using the supercomputer Earth Simulator currently helps predict precise details on global warming and climate change. Through the International Panel on Climate Change (IPCC) and activities with the World Meteorological Organization, Dr. Matsuno continues to make major contributions as a scientist in conveying mankind's immediate issue of global warming to policymakers and societies around the world.



Dr. Daniel Sperling

Regarding how transportation impacts the environment, Dr. Sperling has made major contributions through practical research that involves all fields from science and technology to administration. This has led to drafting of important guidelines for technological development in industry circles and for environmental administration/policies in cities around the world, advancing environmental conservation actions by society. Dr. Sperling focused on the effects that traffic and transportation pose on the environment and ran his own studies that involve vehicle technology/fuel and human behavior, and spearheaded a new research field for developing efficient, low-carbon and environmentally advantageous transportation systems. Dr. Sperling played a leadership role in California's drafting of its climate change and air pollution policy, which serves as a global model for sustainable urban transport, and has greatly influenced technologies of automotive companies in Japan and around the world. In an age in which cities accommodate half of the world's population and emit almost 70% of the world's carbon dioxide, Dr. Sperling's research garners major attention.

Dr. Taroh Matsuno



1953
Entered The University of Tokyo Faculty of Science and majored in Earth Physics



Doctoral thesis predicted Kelvin waves on the Equator, playing an important role in understanding El Niño



In the Fourth IPCC Report, used the Earth Simulator to be the first in the world to predict climate change on a 20-km mesh



1991
Established The University of Tokyo Climate System Research Center; directed climate change predictions for the Third and Fourth IPCC Reports



Together with researchers at Japan Agency for Marine-Earth Science and Technology

Solved the mechanism on how sudden stratospheric warming occurs, and verified with numerical tests



Dr. Daniel Sperling



After graduating from College of Engineering at Cornell University, served on the Peace Corps in Honduras; later worked on developing the nation's urban planning system

1982
Took post at the University of California, Davis; worked on alternative fuel research, and has taught environmental science and policy studies up to present



Serves as a bridge between academic and industry circles and the government to testify in Congress on policy issues, and is actively involved in citizen education activities

1989
Released Alternative Transportation Fuels



2007
Appointed by the governor of California as a member of the Air Resources Board to draft the state's policies on air pollution and climate change



Together with researchers at the Institute of Transportation Studies - the University of California, Davis (ITS-Davis)

Blue Planet Prize Commemorative Lectures

The award winners presented their lectures at the U Thant International Conference Hall at the United Nations University on October 31 to an audience of more than 280 persons. In the first section of the program, Dr. Taroh Matsuno presented a lecture on the topic of “Looking back at the research in projecting global warming and climate variance in Japan,” which was followed by a Q&A session moderated by Prof. Teruyuki Nakajima, Director of Center for Earth System Dynamics, Atmosphere and Ocean Research Institute, The University of Tokyo. In the second section, Dr. Daniel Sperling



Prof. Nakajima



Mr. Sueyoshi



gave a lecture titled “An innovative path to sustainable transportation,” followed by a Q&A session moderated by Mr. Takejiro Sueyoshi,

Special Advisor to The UNEP Finance Initiative. A lot of questions from the audience made the Q&A session substantial and lively. It was a truly fulfilling four hours, providing us with deeper understanding on the achievements of each recipient and a valuable opportunity to learn behavioral guidelines for us to work toward resolving global environment issues. The handouts and lectures can be viewed at the website of the Asahi Glass Foundation.

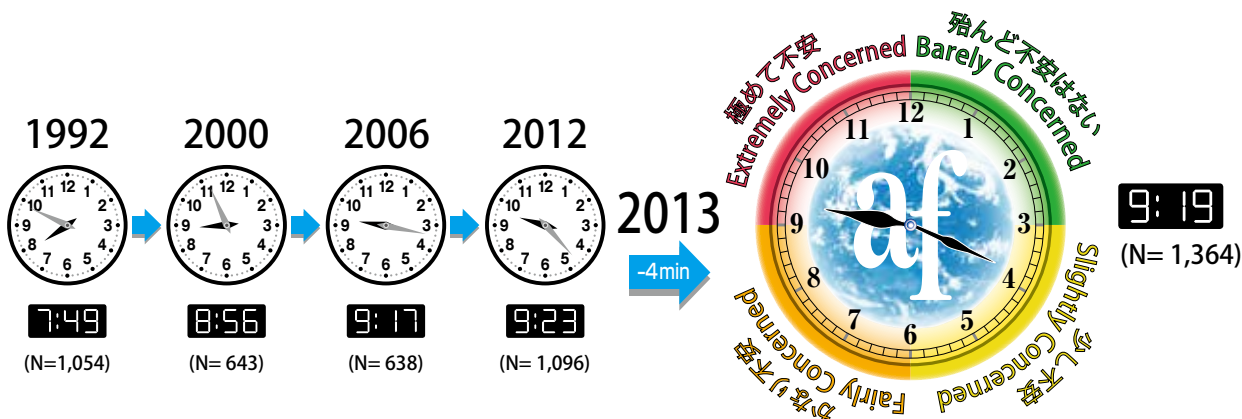
>>> Worldwide Poll of Environmental Practitioners <<<

Results of the 22nd Annual Questionnaire on Environmental Problems and the Survival of Humankind

It is imperative for people worldwide to have a global measure to conserve the global environment. The Asahi Glass Foundation has surveyed experts on environmental issues across the world since 1992, with a questionnaire intended to establish a common understanding and cooperative relationship to solve environmental problems. We report on the Environmental Doomsday Clock from the questionnaire conducted between April and June 2013. Please refer to the results of the questionnaire on the web site (<http://www.af-info.or.jp/>). We are indebted once again to Professor Akio Morishima, Special Research Advisor of the Institute for Global Environmental Strategies and a director of the Asahi Glass Foundation, for his assistance in formulating and compiling the survey. [Questionnaires returned 1364 [Japan 566, Overseas 798]], Response rate 15.1%]

❖ Environmental Doomsday Clock (Perception of the Crisis Facing Human Survival) ❖

The 2013 global average time on the Environmental Doomsday Clock, was 9:19, similar to last year's 9:23. The time for Japan turned back nine minutes to 9:05, and the time for overseas combined moved ahead three minutes to 9:30.



Environmental Doomsday Clock Original Characters

We created friendly original characters and colorful posters for the ease of understanding the concepts exhibited by the Environmental Doomsday Clock and environmental issues to broader age groups, and we announced their release together with the results of the 22nd Annual Questionnaire on Environmental Problems and the Survival of Humankind.



Gring
Woodin's friend. Worrying about Woodin who had run out of energy due to the deteriorating global environment. To refresh Woodin, Gring has been traveling, looking for ways to protect our planet's environment. When Gring is on its journey, it carries Woodin as a pouch.



Woodin
A character associated with the Environmental Doostry Clock. Woodin's state changes with the four crisis levels of the environmental Doomsday Clock.



0:01~3:00
Okay



3:01~6:00
Concerned



6:01~9:00
Worried



9:01~12:00
Fearful



Gring

Woodin



Environmental Doomsday
Clock original character Poster

>>> Environmental Doomsday Clock original character comic book <<<

We published a booklet series that aim to expand environmental awareness using the Environmental Doomsday Clock and that primarily targets younger generations. The story allows readers to understand what environmental issues are occurring on Earth by reading through the adventures of Gring and Woodin. The series also features our foundation's board member Dr. Michiko Imai as a character.

The comic can be viewed on the foundation's website.

We will send the comics upon request. Apply using the Order Form on the foundation's website (<http://www.af-info.or.jp>)



Grantees Report

Research Encouragement Grants in FY2013

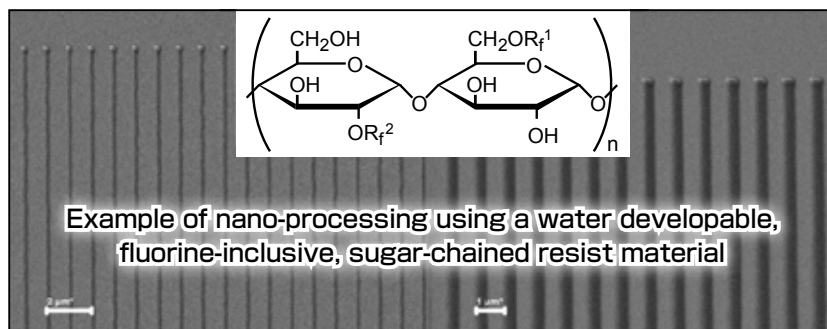
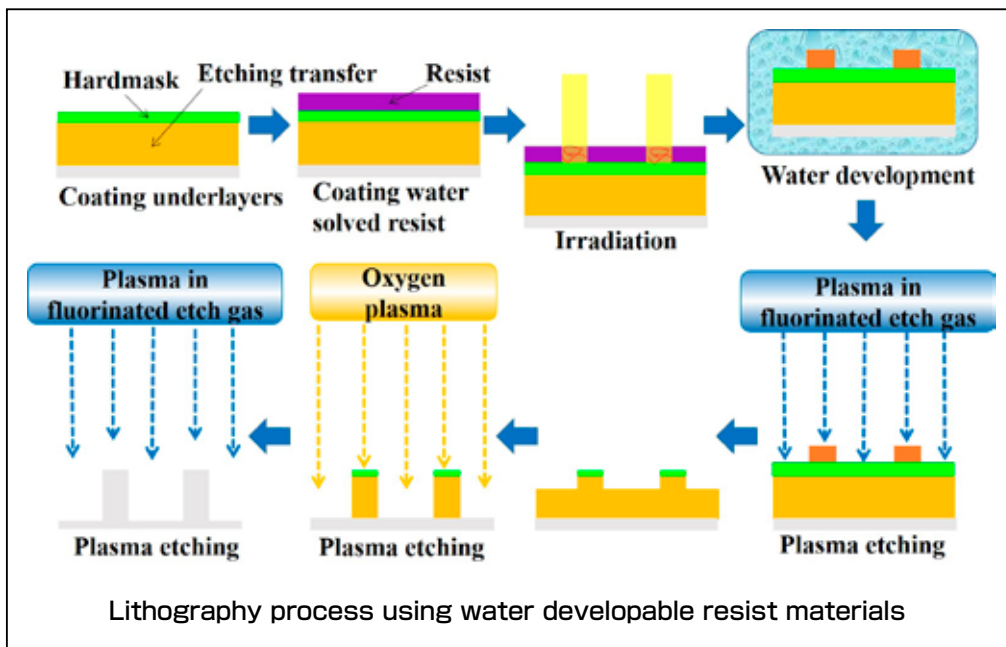
Title: Water-developable fluorine resist materials derived from biomass in EUV lithography

Recipient: Associate Professor Satoshi Takei, Faculty of Engineering,
Toyama Prefectural University (Total: 2.0 million yen, Grant period: 2 years)



Microlithography that uses resist materials is an important technology in manufacturing not only 22-nm next-generation semiconductors but also in submicron processing of displays, LEDs microelectromechanical systems (MEMS), solar cells and biosensors, and in producing electronic devices that use three-dimensional integrated packages. Existing resist materials are oil-based synthetic polymers such as acrylic and ester resins, which still have improvable issues in pattern forms and resolution in advanced fields. Diluent solvents used for existing resist materials are organic solvents such as propyleneglycol monomethylether acetate (PMA), while developer agents used are highly toxic alkaline tetramethylammonium hydroxide (TMAH), and processes that do not use these are in demand.

This research aims to develop an environmentally friendly, water developable, fluorine-inclusive, sugar-chained resist material for extreme ultraviolet lithography (EUV, wavelength of 13.5 nm or less) that will improve traits of the resist material, does not use alkaline developer agents, and will achieve simplification of wastewater treatment



processes. It also aims to develop its microlithography technology. Through development of an environmentally friendly, innovative and unique microlithography material, I hope to contribute to energy efficiency in the manufacturing process of the latest electronic devices and differentiation of electronic materials technology.



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