TAF | TECHNOLOGY ACADEMY FINLAND

AWARDING THE MILLENNIUM TECHNOLOGY PRIZE

January 21, 2013

Dear Sir/Madam,

The nomination period for the 2014 Millennium Technology Prize has started. You are receiving this letter because we believe that candidates for the prize may be working for you or be associated with your organisation.

With a prize pot of at least one million euros, the Millennium Technology Prize is the one of the world's leading science and technology awards. The prize is given every two years for a sustainable innovation that has changed people's lives for the better. The prize is awarded by Technology Academy Finland (TAF), an independent foundation established by Finnish industry in partnership with government and academic institutions.

Candidates for the prize are sought across the world and in all fields of technology apart from military technology. Nominations are welcomed from the representatives of universities, academies, research institutes and companies. The prize can be awarded to a single individual or to a team and is open to innovators of all nationalities.

The Millennium Technology Prize is celebrated for its robust vetting and judging process, run by eminent scientists in their fields. The prize has a track record of picking scientists that go on to major international prominence. To date, the Millennium Technology Grand Prize has been awarded to six pioneering innovators, all of whom are now recognised internationally.

Technology Academy Finland invites you to contribute to the nomination of candidates for the next Millennium Technology Prize. Enclosed you will find a brief brochure on the prize. More detailed information and nomination guidelines are available at www.millenniumprize.fi/cfn.

The nomination material should be provided in English and delivered to Technology Academy Finland by July 31, 2013 at www.millenniumprize.fi/cfn. All qualifying nominations are valid for a single selection round.

We hope you will kindly distribute information about the Millennium Technology Prize in your organisation to appropriate persons.

Yours sincerely,

D.Sc. (Tech.) Ainomaija Haarla
President and CEO
Technology Academy Finland

CALL FOR NOMINATIONS 2014

THE SEARCH FOR THE NEXT MILLENNIUM TECHNOLOGY PRIZE LAUREATES IS ON

This is a time of great opportunity for science and technology. Ground breaking innovations in medicine, computing, physics and other fields are transforming people's lives at an extraordinary pace, yet great achievements do not always receive the high profile they deserve.

Prizes have a unique role to play in bringing scientists and scientific developments to the attention of investors, companies, schools, politicians and the general public. Whether they are taking part or observing, people love competitions; the human drama brings the science alive and helps to start much needed discussions.

To date, the Millennium Technology Prize has been awarded to six Grand Prize Winners, all of whom are now recognised internationally for changing our lives for the better. The winners of the prize are not always household names, but many of them have gone on to even greater achievements.

The Japanese scientist Shinya Yamanaka was not widely known outside the specialist confines of the stem cell world and its research community until he was jointly awarded the Millennium Technology Grand Prize 2012 for generating stem cells from non-embryonic material. Since winning the prize, he reports an increasing number of top-level scientists keen to work with him. Just a few months later the Nobel committee chose to award him the Nobel Prize for medicine, giving his work an even higher profile.

In 2010 the Millennium Technology Grand Prize was awarded to the Swiss Professor Michael Grätzel for his work on third generation solar cells. Following the award, the investment community finally started to believe in the potential for growth of this technology, enabling Professor Grätzel to raise significant funds to develop his invention further.

Naturally, the awarding of prizes divides opinion. It can be difficult to weigh one scientist's contribution over another's in an unrelated field. The contributions of team members may be overlooked when awarding a prize to one 'star' scientist. These and other objections are raised by critics of scientific prizes, but if disagreements lead to more people engaging passionately with science and solutions, then that in itself is a good outcome.

In delivering the Millennium Technology Prize, we at Technology Academy Finland pride ourselves in an international selection committee with a broad scientific, geographical and gender spread of world-class scientists, who can independently select the innovations most likely to benefit mankind by tackling our environmental, health and other challenges.

As long as science prizes are rigorous and judged by scientific experts – and as long as they earn the respect of the scientific community – they can indeed stimulate innovation by attracting funding and public interest. Top quality nominations are the basis for all that the Millennium Technology Prize achieves, and we look forward to receiving them once again.

Ainomaija Haarla
President & CEO
Technology Academy Finland

SUSTAINABLE TECHNOLOGICAL INNOVATION IN SPOTLIGHT

Solar electricity is the fastest growing ecological energy technology in the world.

Pluripotent stem cell research can help tackle intractable diseases such as diabetes or Parkinsons disease.

The Millennium Technology Prize is Finland's tribute to life-enhancing technological innovation that has a positive impact on the quality of life, both now and in the future.

With a prize worth at least one million euros the Millennium Technology Prize is awarded every two years by Technology Academy Finland (TAF), an independent foundation established and funded by Finnish industry in partnership with government and academic institutions.

Winning inventions – the World Wide Web, LED as a new energy-efficient light source, innovative biomaterials for controlled drug release and third generation solar cells, stem cell research and open source operating systems have already enhanced the quality of life for billions of people. They illustrate the wide range of innovations that are considered for the Prize.

GENERAL PRINCIPLES OF THE MILLENNIUM TECHNOLOGY PRIZE

1

Awarded to groundbreaking technological innovations that enhance the quality of people's lives in a sustainable manner.

2

The innovations have been applied in practice and are delivering extensive change now and in the future.

3

The innovations stimulate further cutting edge research and development in science and technology.

With many nominations received from very different fields within science and technology, a rigorous, thorough, fair and unbiased judging process is crucially important. Our International Selection Committee comprises eight scientists who are selected both for their eminence and for the wide range of their collective scientific interests.

There are two important criteria in the International Selection Committee's assessment process. Firstly, an innovation must have a beneficial influence on the largest possible number of people while promoting sustainable development. Secondly, as the Millennium Technology Prize is designed to encourage further cutting-edge research and development, it is not intended as a reward for lifetime achievement.

The values of the prize associate with those of Finland, its homeland: Finland's environmental record, reckoned by the Centre for Global Development to be among the strongest in the world; its flourishing clean-tech sector; and its humane values.

The Prize is presented to the Winner(s) by the President of The Republic of Finland at a prestigious award ceremony in Helsinki, during Millennium Technology Week. As well as academics, scientists and business leaders, the audience includes a group of exceptional young scientists involved in the Millennium Youth Camp, a unique annual event timed to coincide with the Millennium Technology Prize giving.

At the award ceremony 2012.

HOW TO NOMINATE A CANDIDATE

The nomination period for the sixth Millennium Technology Prize begins on 14th January 2013 and remains open until 31st July 2013. Nominations are sought from universities, academies, research institutes and industrial organizations all over the world. Every eligible organization has the opportunity to nominate candidates from all fields of technology except for military technology.

Citizens of all nations are eligible for the Millennium Technology Prize. It can be awarded to a single individual or to a team, and can be shared between a number of individuals who have made essentially equal contributions to the success of an innovation. Self nominations are not accepted.

Nomination material must be provided in English and delivered to Technology Academy Finland **by 31st July 2013** through a secure web based system at **www.millenniumprize.fi/cfn**

For detailed information, nomination criteria and nomination documents, please visit the Millennium Technology Prize website: **www.millenniumprize.fi/cfn**

For specific guidelines and enquiries regarding the submission of nominations, please contact D.Sc. (Tech.) Ainomaija Haarla, President and CEO of Technology Academy Finland, at: **ainomaija.haarla@technologyacademy.fi**.

14th JANUARY TO 31st JULY 2013	Organizations nominate candidates for the Millennium Technology Prize.
AUTUMN 2013	The pre-selection committee reviews the nominations, ensures their eligibility and acquires further references if necessary. The International Selection Committee reviews the nominations and recommends a list of Laureate candidates to Board of Technology Academy Finland.
SPRING 2014	The Board approves the Laureates. The International Selection Committee makes its recommendation for the Grand Prize Winner(s) for the Board. The Board of Technology Academy Finland decides on the Grand Prize Winner(s).
JUNE 2014	Awards are presented to the Winner(s) at a prestigious award ceremony in Helsinki.

HIGH STANDARDS OF JUDGING

The task of sifting and assessing the nominations falls to the International Selection Committee, whose members have access to all materials prepared by the nominators and who carry out additional research on the most promising candidates.

The Committee members are selected by the Board of Technology Academy Finland based on proposals made by Aalto University. The term of each Committee member is eight years at maximum, i.e. four rounds.

The Committee members represent a wide range of technology related disciplines and include eight eminent scientists from academia and industry. In addition to broad scientific knowledge, they are selected for their individual special research areas which include: life sciences; material technologies; information and communications technology and digitalization; energy, environment and water.

Chancellor Jarl-Thure Eriksson, Finland

CHAIRMAN OF THE SELECTION COMMITTEE

- Chancellor of Åbo Akademi University; formerly Rector of Tampere University of Technology.
- Expertise: Superconductivity, complex systems and neural networks.

Professor Eva-Mari Aro, Finland

- Professor in Molecular Plant Biology at the University of Turku.
- Expertise: Photosynthesis, solar-energy conversion and chloroplast signaling.

Professor Jaakko Astola, Finland

- Professor of Signal Processing at Tampere University of Technology.
- Expertise: Signal processing, information theory and statistics.

Dr. Craig R. Barrett, United States of America

- Ex CEO/Chairman of the Board of Intel Corporation; Associate Professor at Stanford University; chairs Change The Equation, Achieve, Inc., Dossia, and the Skolkovo Foundation Council Board of Directors.
- Expertise: Improving educational standards in the United States and around the world.

Dr. Hans-Joachim Freund, Germany

- Scientific Member and Director at the Fritz Haber Institute of the Max Planck Society in Berlin. Adjunct Professor with the three Berlin Universities, heads the Department of Chemical Physics.
- Expertise: Physical Chemistry of Surfaces, Interfaces and Nanostructures, in particular, in relation to Heterogeneous Catalysis.

Academician Riitta Hari, Finland

- Director of both the multidisciplinary Brain Research Unit of the Low Temperature Laboratory at Finland's Aalto University and the national Center of Excellence on Systems.
- Expertise: Neuroscience and neuroimaging.

Professor Konrad Osterwalder, Switzerland

- Rector of the United Nations University; Under-Secretary-General of the United Nations; member of the Swiss Academy of Technical Sciences.
- Expertise: Mathematical structure of relativistic quantum field theory, elementary particle physics, statistical mechanics.

Dr. Ayao Tsuge, Japan

- President of the Japan Federation of Engineering Society, Member of the Science Council of Japan and Vice President of the Engineering Academy of Japan.
- Expertise: Energy, environment and economy, innovation, the management of technology and international relations.

Dr. Ainomaija Haarla, Finland

SECRETARY OF THE SELECTION COMMITTEE

- President and CEO of Technology Academy Finland; Chair of the Board of Directors of Korona Invest Oy and Korona Invest II Oy, member of the Board of Altia Oyj and Euro-CASE.
- Expertise: Bioproduct technologies, innovation, competitiveness through products and technology foresight.

The 2012 Millennium Technology Grand Prize winners Shinya Yamanaka and Linus Torvalds receiving the Grand Prize trophies from the hand of President Sauli Niinistö at the award ceremony in Helsinki on 13 June 2012. The prize is under the patronage of the President of the Republic of Finland.

HALL OF FAME

GRAND PRIZE WINNERS

JOINT WINNER 2012
PLURIPOTENT STEM CELLS

DR. SHINYA YAMANAKA

"My goals over the decade include developing new drugs for intractable diseases such as heart disease, diabetes and spinal injuries by using iPS cell technology."

JOINT WINNER 2012
OPEN SOURCE OPERATING SYSTEM

LINUS TORVALDS

"I think open source is so important, it is basically taking the scientific approach to building on the openly published work of others, and applying it to software."

WINNER 2010 – THIRD GENERATION SOLAR CELLS

MICHAEL GRÄTZEL

"The demand for energy is so huge that by 2050 we will have a 14 ter-awatt power supply gap – that's as much as the world's population is consuming today. Solar energy can maybe pick up one-fourth to one-third of that slack."

WINNER 2008 – CONTROLLED DRUG RELEASE SYSTEM

ROBERT LANGER

"We want to get a better understanding of the immune system and the brain from the engineering perspective. I think these areas could be new frontiers, and very little has been done to date."

WINNER 2006 – LEDS

SHUJI NAKAMURA

"I am now working towards developing a solid-state lighting system with close to 100 per cent efficiency, which will ease energy and pollution problems as well as light up developing countries."

WINNER 2004 – WORLD WIDE WEB

SIR TIM BERNERS-LEE

"The spirit of the internet was not one of patents and royalties but of academic openness."

1+2) Events organized by Technology Academy Finland are excellent places for networking and sharing of ideas. 3) The 2012 Millennium Technology Prize Award Ceremony coctail reception. 4) Happy Millennium Youth Campers. 5) Discussion at the Millennium Technology Summit 2012.

COOPERATION ACROSS INDUSTRIES, IN PUBLIC-PRIVATE PARTNERSHIP

Technology Academy Finland (TAF) is the independent foundation that awards the Millennium Technology Prize and runs associated events such as the Millennium Youth Camp and Millennium Distinction Awards.

TAF's Mission

Advancing innovations that improve the quality of people's lives in a sustainable manner

Encouraging forms of cooperation that support such innovations

Promoting Finland as a high-tech country by bringing together and strengthening domestic and international networks

Inspiring young people to choose a career in technology and the natural sciences

TAF promotes the adaptation and utilization of new sustainable technology and strives to influence societal change that falls within the scope of the foundation's objectives. TAF incorporates the Finnish Academy of Technology (TTA), the Swedish Academy of Engineering Sciences in Finland (STV) and the Industry Council, whose members represent leading Finnish industrial companies.

One of TAF's strengths is the tripartite cooperation between industry, governmental organizations and the scientific community and its extensive network throughout these sectors. All three sectors are represented in both the Board and the Executive Committee.

TAF is a member of the Council of Academies of Engineering and Technological Sciences (CAETS), The European Council of Academies of Applied Sciences, Technologies and Engineering (Euro-CASE) and a cooperation partner of the World Economic Forum (WEF).