COSPAR
COMMITTEE ON SPACE RESEARCH

ESTABLISHED BY ICSU:
THE INTERNATIONAL
COUNCIL FOR SCIENCE

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Press Release

(for immediate release)

Committee on Space Research (COSPAR)

Awards 2014

To be presented on 4 August during the 40th COSPAR Scientific Assembly

2 – 10 August 2014, Moscow, Russia

See below for complete citations and a brief description of COSPAR.

- COSPAR Space Science Award for outstanding contributions to space science:

David J. McComas (USA), Southwest Research Institute, San Antonio, TX, USA

Jean-Loup Puget (France), Institut d'Astrophysique Spatiale, Université Paris-Sud, Orsay, France

- COSPAR International Cooperation Medal for distinguished contributions to space science and work that has contributed significantly to the promotion of international scientific cooperation:

Carlé McGetchin Pieters (USA), Department of Geological Sciences, Brown University, Providence, RI, USA

- COSPAR William Nordberg Medal commemorating the late William Nordberg and for distinguished contributions to the application of space science in a field covered by COSPAR:

Mikhail Ya. Marov (Russia), Dept. of Space Sciences and Cosmochemistry, Vernadsky Inst., Moscow, Russia

- COSPAR Harrie Massey Award honoring the memory of Sir Harrie Massey, FRS, for outstanding contributions to the development of space research in which a leadership role is of particular importance:

Eugene Churazov (Germany/Russia), Max-Planck Institute for Astrophysics, Garching, Germany and Space Research Institute, Moscow, Russia

- Vikram Sarabhai Medal (a joint award of COSPAR and the Indian Space Research Organization) honoring Vikram Sarabhai, one of the architects of modern India, for outstanding contributions to space research in developing countries:

Gurbax Singh Lakhina (India), Indian Institute of Geomagnetism, Navi Mumbai

- Jeoujang Jaw Award (a joint award of COSPAR and the Chinese Academy of Sciences) recognizing scientists who have made distinguished pioneering contributions to promoting space research, establishing new space science research branches and founding new exploration programs:

Martin Sweeting (United Kingdom), Surrey Space Centre, University of Surrey, Guildford, United Kingdom

- Yakov B. Zeldovich Medals (a joint award of COSPAR and the Russian Academy of Sciences) conferred on young scientists for excellence and achievements, honoring the distinguished astrophysicist Yakov B. Zeldovich. One medal is awarded for each COSPAR Scientific Commission:

- *COSPAR Scientific Commission A*

Jérôme Bouffard (France)
Mediterranean Institute of Oceanography, Marseille

for pioneering studies in coastal oceanography and significant contribution to the enhancement of coastal altimetry.

- COSPAR Scientific Commission B

Diego Turrini (Italy)
Inst. for Space Astrophysics & Planetology (IAPS/INAF), Rome

for significant contributions to the study of planetary formation through the novel use of data from space missions and the original formulation of the Jovian Early Bombardment scenario.

- COSPAR Scientific Commission C

C. Vineeth (India)
Space Physics Laboratory, Vikram Sarabhai Space Centre, ISRO, Trivandrum

for significant contributions to the study of couplings in the middle atmosphere/thermosphere/ionosphere system based on new optical remote sensing

- COSPAR Scientific Commission D

Anton Artemyev (Russia)
Space Research Institute, Russian Academy of Sciences, Moscow

to honour his contribution to the understanding of particle diffusion and acceleration on oblique whistler waves in the radiation belts

- COSPAR Scientific Commission E

Nanda Rea (Spain/Netherlands)
Inst. of Space Sciences, UAB, Barcelona / Anton Pannekoek Astronomical Inst., Amsterdam

for pioneering study of magnetar outbursts and significant contribution to the discovery of low magnetic field magnetars

- COSPAR Scientific Commission F

Luca Mariotti (Italy)
Physics Department, Pavia University

for his significant contribution to the understanding of radiation induced carcinogenesis and the balance between proliferation and apoptosis in irradiated cells

- COSPAR Scientific Commission G

José Miguel Ezquerro Navarro (Spain)
Spanish User Support and Operations Center, Universidad Politécnica de Madrid

for expertise, professionalism and commitment during support operation of fluid dynamics experiments aboard the International Space Station

- COSPAR Scientific Commission H

Benny Rievers (Germany)
Center for Applied Space Technology and Microgravity (ZARM), Bremen

for the invention of new methods in thermal modelling and the subsequent resolution of the Pioneer Anomaly

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CITATIONS

- COSPAR Space Science Award:

David J. McComas (USA)

Dr. David J. McComas is the Assistant Vice President for Space Science and Engineering at the Southwest Research Institute (SwRI) in San Antonio, Texas and Adjoint Professor in the joint University of Texas, San Antonio - SwRI graduate program in Physics, which he helped to establish in 2004. Dr. McComas received his B.S. in Physics from MIT in 1980 and Ph.D. in Geophysics and Space Physics from UCLA in 1986. Prior to SwRI, he worked at the Los Alamos National Laboratory and served as Group Leader for Space and Atmospheric Sciences, NASA Program Manager, and founding Director of the Center for Space Science and Exploration.

Dr. McComas is the Principal Investigator for NASA's Interstellar Boundary Explorer (IBEX) and Two Wide-angle Imaging Neutral-atom Spectrometers (TWINS) missions as well as for the Ulysses-SWOOPS, ACE-SWEPAM, Juno-JADE, New Horizons-SWAP, and Solar Probe Plus-ISIS instruments. Dr. McComas and his team have provided much of the data used by the space science community to study the 3-D solar wind and its interactions with Earth's magnetosphere, its interactions with other planetary magnetospheres and solar system bodies, and its interactions with the local interstellar medium. Dr. McComas has contributed profoundly to exploring our heliospheric home and to understanding the complex physical processes that control its evolution. He has been a regular contributor to the scientific exchanges of COSPAR Commissions for over thirty years and has participated on and chaired important panels and committees for the American Geophysical Union, the US National Academy, and NASA; he currently serves as the Chairman of the NASA Advisory Council's Science Committee.

David J. McComas is a most deserving recipient of this award.

Jean-Loup Puget (France)

Dr. Jean-Loup Puget has been the Principal Investigator since 1995 of the High Frequency Instrument (HFI) of the Planck Mission. He served as Deputy Director of the Institut d'Astrophysique de Paris from 1978 to 1982. After a one-year position in the Space Science Department at the University of California, Berkeley, he joined the Physics Department of Ecole Normale Supérieure and then in 1989 the Institut d'Astrophysique Spatiale (Orsay), serving as Deputy Director from 1990 until 1998 when he became Director (1998-2006). In 1971, in the framework of his PhD thesis work at the Goddard Space Flight Center, he worked on the prediction of gamma rays issued from the annihilation at the boundaries matter-antimatter with the first gamma ray satellite (SAS2). He got his PhD in 1973 (Paris University). This work was expanded with the first interpretation of the galactic gamma rays emission. He led the work which ended up with the first detection of the cosmic infrared background (CIB) in the COBE-FIRAS data. His work on dust emission led to the discovery of the Polycyclic Aromatic Hydrocarbon molecules (PAHs). He acted as Mission Scientist on the Infrared Space Observatory (ISO) of ESA and on SPITZER of NASA. For about twenty years he has been the leader of HFI on Planck, with sub-Kelvin cooling of the detectors for the first time in space. Among the major cosmological results particularly noteworthy are: the high-precision determination of cosmological parameters, spatial flatness, no evidence for additional neutrino-like relativistic particles and an upper limit of 0.23 eV for the summed neutrino mass. He and his collaborators are also performing a careful analysis of the polarisation data taking great care of all observational and instrumental biases. Dr. J.-L. Puget has authored more than 200 refereed scientific publications and has been a regular contributor at COSPAR Assemblies. He has been member and chairman of many national and international scientific committees for ESA, ESO, the French Academy, and he is now chairman of the Science Program Committee of the French space agency (CNES).

Given these accomplishments and more, Dr. Jean-Loup Puget is a most worthy recipient of the COSPAR Space Science Award.

- COSPAR International Cooperation Medal:

Carlé McGetchin Pieters (USA)

Professor Carlé Pieters has spent her career enabling international cooperation in science, beginning as a science teacher in Sarawak Malaysia with the Peace Corp before she entered college and culminating most recently in providing the M3 Spectrometer for India's Chandrayaan-1 lunar mission that allowed it to establish the presence and distribution of water on the Moon.

After receiving her Bachelor, Masters and Ph. D degrees from MIT she joined NASA's Johnson Space Center until 1980 when she went to Brown University where she is currently a Professor of Geological Sciences. There she managed the Reflectance Experiment Laboratory that is used worldwide for the interpretation of spacecraft and telescopic data from planetary bodies. She also served as a member of the Japanese Kaguya Science Team, leading an international cross-calibration effort of the optical teams from several lunar missions. On NASA's Dawn mission she is working closely with the Italian Visible and Infrared Mapping Spectrometer team and the German Framing Camera team to understand the surfaces of Vesta and soon Ceres. Other international activities include chairing the United Kingdom – NASA MoonLITE Science Evaluation Board and serving as President of the International Lunar Exploration Working Group.

Throughout her career she has been a major player in the study of the Moon and the asteroid belt not only from the surface of the Earth but in space as well, from the lunar Clementine mission to the Dawn mission in operation in the asteroid belt today. In parallel with her research efforts, she has strongly supported the dissemination of science through COSPAR's Advances in Space Research and the COSPAR Scientific Assemblies as an active member of Commission B.

In summary, Professor Pieters has been a most productive international scientific citizen from her early days as a science teacher in Malaysia to the recent outstanding successes of her spectrometer for Chandrayaan. Carlé Pieters is indeed a most deserving recipient for the 2014 COSPAR International Cooperation Medal.

- COSPAR William Nordberg Medal:

Mikhail Ya. Marov (Russia)

Academician Mikhail Marov has made many distinguished contributions to the application of space science. His achievements and fundamental contributions to space science, planetary research and the study of natural mechanisms on the terrestrial planets with implications for Earth using a comparative planetology approach are truly outstanding.

In particular, Professor Marov served as Project Scientist and Principal Investigator on the VENERA and MARS lander series in the Soviet Union and also made great contributions to the LUNA, VEGA and PHOBOS GRUNT space projects. He also was responsible for implementation of the first in situ measurements in the Venus and Mars atmospheres as well as development of models used for the design of the Venera landers which had to survive in the hot and dense atmosphere on Venus' surface. He has also been involved in fundamental studies and pioneering research in the Earth's aeronomy with application for evaluation of artificial satellite and orbital station lifetime and ozone layer decay depending on the abundance of minor constituents in the middle atmosphere. His investigation of radiative and convective transfer applied to the Venera lander design enabled transmission of the first surface images and measurements of soil composition. Furthermore, his development of the theory of turbulent multicomponent reactive gases and rarefied gas kinetics is significant for advanced modeling procedures and important scientific and technical applications such as protoplanetary gas-dust disc evolution and primordial planetary bodies formation, light scattering by aerosols of natural and antropogenic origin, estimate of Martian ancient ocean loss, gas-oil industry, etc. And to cite one last accomplishment, his study of migration processes and estimates of the delivery of water and volatiles to Earth and terrestrial planets has implications for understanding the early history of the solar system evolution.

Mikhail Marov is, indeed, a most deserving recipient for the 2014 COSPAR William Nordberg Medal.

- COSPAR Massey Award:

Eugene Churazov (Germany/Russia)

Dr. Eugene Churazov received his M.S. (summa cum laude) from the Moscow Institute of Physics and Technology (1985) and his Ph.D. (1989) and Doctor of Physics and Mathematics (1996) from the Space Research Institute (Moscow). Dr. Churazov was elected a corresponding member of the Russian Academy of Sciences in 2008 and currently holds joint appointments at the Institute for Space Research (Moscow, Russia) and the Max Planck Institute for Astrophysics (Garching, Germany). Dr. Churazov was one of the central figures in the Russian-led international missions MIR-KVANT (1987-2001) and GRANAT (1989-1998), and made important contributions to the ESA-led INTEGRAL mission (launched by a Russian Proton rocket and operating since 2002) and presently participates in the ESA Athena+ mission. In addition, Dr. Churazov is the Russian deputy PI of the Russian-German Spectrum-X mission.

Dr. Churazov has made fundamental contributions to X-ray and Gamma-ray astronomy in both theory and observation. He conceived pioneering investigations of our Galactic Center in hard X-rays (using KVANT and GRANAT), electron-positron annihilation emission from our Galaxy (using INTEGRAL), the variability of black holes in X-rays (with RXTE), and hot gas physics in galaxy clusters (using Chandra and XMM-Newton). Dr. Churazov played a leading role in resolving the quarter century conundrum to explain why hot gas in clusters was not cooling and forming stars at the predicted rates. He developed key theoretical insights and applied these to ROSAT, XMM-Newton, and Chandra observations to show that buoyant plasma bubbles, produced by outbursts from supermassive black holes, could be used to measure the mechanical energy output from supermassive black holes. He also showed that the bulk of the AGN power was captured within cluster cooling cores, was sufficient to reheat the cooling gas and, hence, explain the relatively small amounts of star formation and cool gas that are observed in hot gas-rich systems from early type galaxies to rich clusters.

The leadership Dr. Churazov has shown in advancing these projects makes him a well-deserving recipient of the 2014 COSPAR Massey Award.

- COSPAR/ISRO Vikram Sarabhai Medal:

Gurbax Singh Lakhina (India)

Professor Gurbax Lakhina is an eminent Space Plasma and Space Weather physicist. He has carried out cutting-edge research on chorus wave interaction with radiation belt electrons, linear and nonlinear waves in space and astrophysical plasmas, magnetic storms and space weather, and on mirror modes and magnetic decreases. His fundamental contribution to chorus properties - that chorus has circularly magnetic polarization at all angle of propagation relative to the ambient magnetic field and that the waves change from a highly coherent nature at its source location into quasi-coherent waves with propagation -has been recognised internationally. Professor Lakhina has made seminal contribution to the generation mechanism for electrostatic solitary waves observed in the magnetosphere by several space crafts, and in identifying the interplanetary causes of intense and super-intense magnetic storms, like the classic 1859 Carrington event, the largest storm on record.

Professor Gurbax Lakhina has published over 230 well-cited papers. COSPAR and the Indian Space Research Organisation are truly honoured to award the COSPAR - Vikram Sarabhai Medal 2014 to Professor Gurbax Lakhina of India for his outstanding research contributions in space plasma and space weather.

- COSPAR/CAS Jeoujang Jaw Award:

Martin Sweeting (United Kingdom)

Professor Martin Sweeting pioneered the concept and engineering of rapid-response, low-cost and highly-capable micro satellites utilizing commercial “off-the-shelf (COTS) devices. This concept and his endeavor in making the COTS devices gradually changed the world of space industry and the related economy and politics to the point that not only big space countries can launch a space mission, but also small developing countries and even university students can make and operate a satellite. Currently, there are hundreds of small, micro and nano satellites flying in space, making contributions to communication, earth observation and space research, which has already, become an important part of the overall space facility.

For his significant contribution to the concept and engineering of low cost micro-satellites, the 2014 Jeoujang Jaw Award is given to Professor, Sir Martin Sweeting.

COSPAR TODAY

The Committee on Space Research (COSPAR) has both National Scientific Institutions and International Scientific Unions as members. Forty-six National Scientific Institutions engaged in space research and thirteen International Scientific Unions adhering to the International Council for Science (ICSU) belong to COSPAR. Moreover, approximately 9000 scientists actively engaged in space research are COSPAR Associates. Companies and organizations interested in supporting COSPAR activities may also become Associated Supporters of the Committee.

COSPAR acts mainly as an entity which:

- is responsible for organizing biennial Scientific Assemblies with strong contributions from most countries engaged in space research. These meetings allow the presentation of the latest scientific results, the exchange of knowledge and also the discussion of space research problems. Over several decades providing this service has brought recognition to the COSPAR Scientific Assembly as the premier forum for presenting the most important results in space research in all disciplines and as the focal point for truly international space science. In this regard it should be observed that COSPAR has played a central role in the development of new space disciplines such as life sciences or fundamental physics, by facilitating the interaction between scientists in emergent space fields and senior space researchers,
- provides the means for rapid publication of results in its journal *Advances in Space Research*,
- strives to promote the use of space science for the benefit of mankind and for its adoption by developing countries and new space-faring nations, in particular through a series of Capacity Building Workshops which teach very practical skills enabling researchers to participate in international space research programs,
- organizes, on a regional scale, scientific exchange and public outreach on specific research topics, in the framework of Colloquia and Symposia,
- advises, as required, the UN and other intergovernmental organizations on space research matters or on the assessment of scientific issues in which space can play a role, for example the Group on Earth Observations (GEO), in which COSPAR is a Participating Organization and co-chair of its Scientific and Technology Committee,
- prepares scientific and technical standards related to space research,
- promotes, on an international level, research in space, much of which has grown into large international collaborative programs in the mainstream of scientific research.

COSPAR's objectives are to promote on an international level scientific research in space, with emphasis on the exchange of results, information and opinions, and to provide a forum, open to all scientists, for the discussion of problems that may affect scientific space research. These objectives are achieved through the organization of Scientific Assemblies, publications and other means.

ICSU established COSPAR during an international meeting in London in 1958. COSPAR's first Space Science Symposium was organized in Nice in January 1960. COSPAR is an interdisciplinary entity that ignores political considerations and views all questions solely from the scientific standpoint.

A complete list of previous award recipients may be found at:

https://cosparhq.cnes.fr/awards

Further information on COSPAR is available at:

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