Press Release

Aug 16, 2019

Association of Asia-Pacific Physical Societies (AAPPS)

Division of Plasma Physics (AAPPS-DPP)

AAPPS-DPP Plasma Innovation Prize

– Professor R. W. Boswell is selected as First Laureate –

The Division of Plasma Physics (Chair: Mitsuru Kikuchi) under the Association of Asia Pacific Physical Societies (President: Gui-Lu Long) selected Professor ***Roderick William Boswell*** of The Australian National University as the first Laureates of AAPPS-DPP Plasma Innovation Prize, which is awarded to scientists who have made seminal / pioneering contributions in the field of plasma applications, focusing on impacts on industry.

Citations

Roderick William Boswell*: "For wide-ranging contributions to fundamental plasma physics and applications to terrestrial and space industries, in particular for discovery and invention of high-density low pressure radiofrequency plasma source called a 'helicon plasma source', with broad and significant impact on low-temperature plasma physics, plasma processing for microelectronics represented by plasma etching and focused ion beam source, and plasma thrusters, in which he exerted leadership to pioneer new scientific research fields and industrial applications."*

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Press Release

On the achievements of Professor Roderick William Boswell

Professor Roderick W. Boswell

Prof. Roderick W. Boswell was born in 1944 at Melbourne, received his Ph. D thesis at Flinders University in 1974. After working at England, Netherland, and Germany from 1970-1980, he returned to Australia to work at Australian National University. Since 1998, he has been Professor of the Australian National University.

Prof. Rod Boswell is the inventor of the nowadays well-known '**helicon plasma source**' yielding the very efficient plasma production in low pressure. He has established the foundation of the field of helicon plasmas in term of the scientific significance by understanding the wave-plasma interactions and ionization processes. The application of the helicon sources to **plasma etching in microelectronics** is also another key aspect of his research, yielding the **high etching rate** by the helicon source and establishing the basic physics of pulsed plasma etching technique for **high selectivity and anisotropy**. Furthermore, he has worked on a development a **focused ion beam system** providing a 1000 times brighter than the existing ones. More recently, his group has discovered a current-free double layer that leads to the spontaneous acceleration in the expanding helicon plasma and proposed the new concept of the **space propulsion** device. His achievements including the above-mentioned researches have a strong impact in both academia and industrial companies over the world. In particular, his work helped to shape the future development in both the **microelectronics and space industries**.

He has published over 300 scientific papers encompassing plasma source development, plasma etching and deposition, plasma thrusters, space physics, plasma diagnostic development, and ion sources for focused ion beams and Secondary Ion Mass Spectrometry. Professor Boswell not only is the acknowledged world leader in the experiments, theory, and application of helicon plasma sources, but also his work for over thirty years has had a tremendous impact on worldwide plasmas source development. With a strong passion in supporting and training young scientists across the globe, many of his former students or young scientists worked with him are leading scientists in several countries.

Prof. Rod Boswell was elected as fellows of the American Physical Society (1998), the Australian Academy of Technological Science (1999), the International Union of Pure and Applied Chemistry (2002), the Australian Academy of Sciences (2008), and the International Society of Plasma Chemistry (2013). In addition, he has won many prizes and awards, including: PSTD Prize for Science and Technology, American Vacuum Society, Centenary Medal of Australia, Elected Member of the Order of Australia, and the Doctorat Honouris Causa, University of Orleans in France. He is truly one of the most celebrated world leaders in the field of low temperature plasma physics and applications.

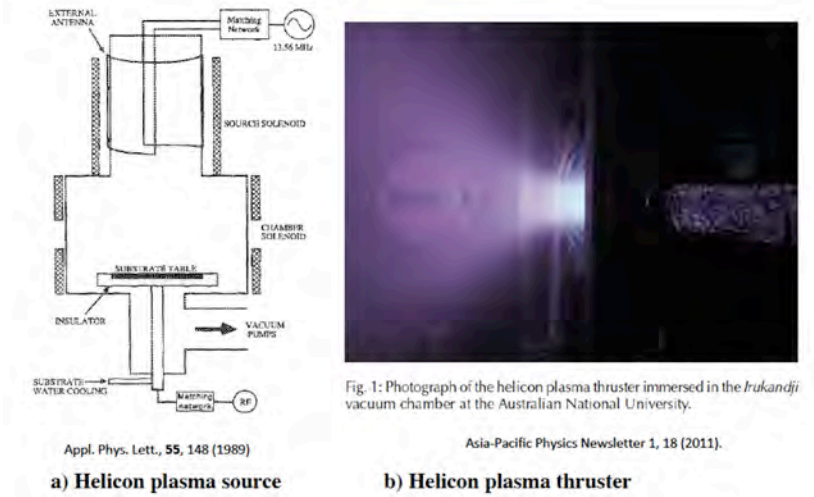


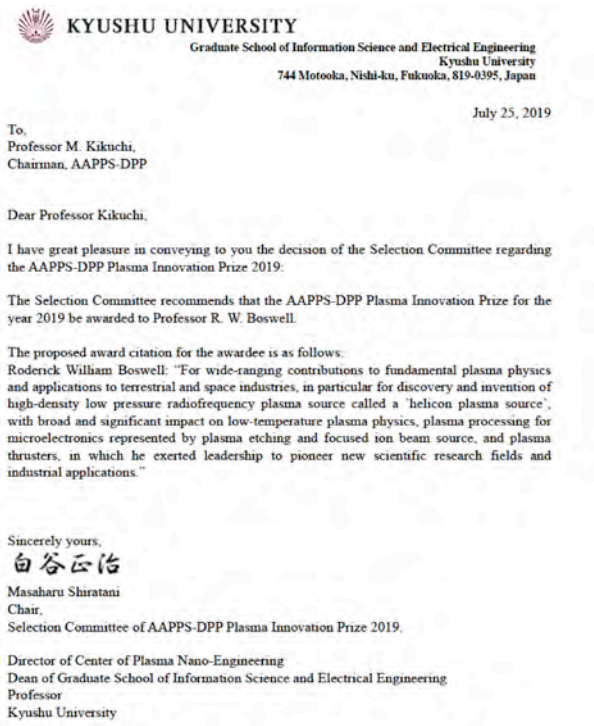
Fig. Schematics of helicon plasma source and helicon thruster

Press Release

Appendix-1: 2019 AAPPS-DPP Plasma Innovation Prize

AAPPS-DPP Plasma Innovation Prize was founded by the AAPPS-DPP in 2019. This prize is given to a plasma physicist/engineer annually to recognize outstanding contributions to experimental and/or theoretical research in all fields of plasma applications, focusing on impacts on industry. The 2019 Selection Committee composed of leading physicists of plasma application in Asia-Pacific region.

Selection committee:
Chairman:
Prof. Masaharu Shiratani (Kyushu University)
Members:
Prof. Yi-Kang Pu (Tsinghua University)
Prof. Jing Zhang (Donghua University)
Prof. Rikizo Hatakeyama (Tohoku University)
Dr. Tony Murphy (CSIRO)
Prof. Jenq-Gong Duh (National Tsinghua University)
Prof. Jang-Hsing Hsieh (MingChi Univ. of Technology)
Prof. Abhijit Sen (Institute of Plasma Research)
Prof. Sudeep Bhattacharjee (India Inst. of Technology)
Prof. Wonho Choe (KAIST)
Dr. Jung-Sik Yoon (National Fusion Research Institute)



KYUSHU UNIVERSITY
Graduate School of Information Science and Electrical Engineering
Kyushu University
744 Motooka, Nishi-ku, Fukuoka, 819-0395, Japan

July 25, 2019

To,
Professor M. Kikuchi,
Chairman, AAPPS-DPP

Dear Professor Kikuchi,

I have great pleasure in conveying to you the decision of the Selection Committee regarding the AAPPS-DPP Plasma Innovation Prize 2019.

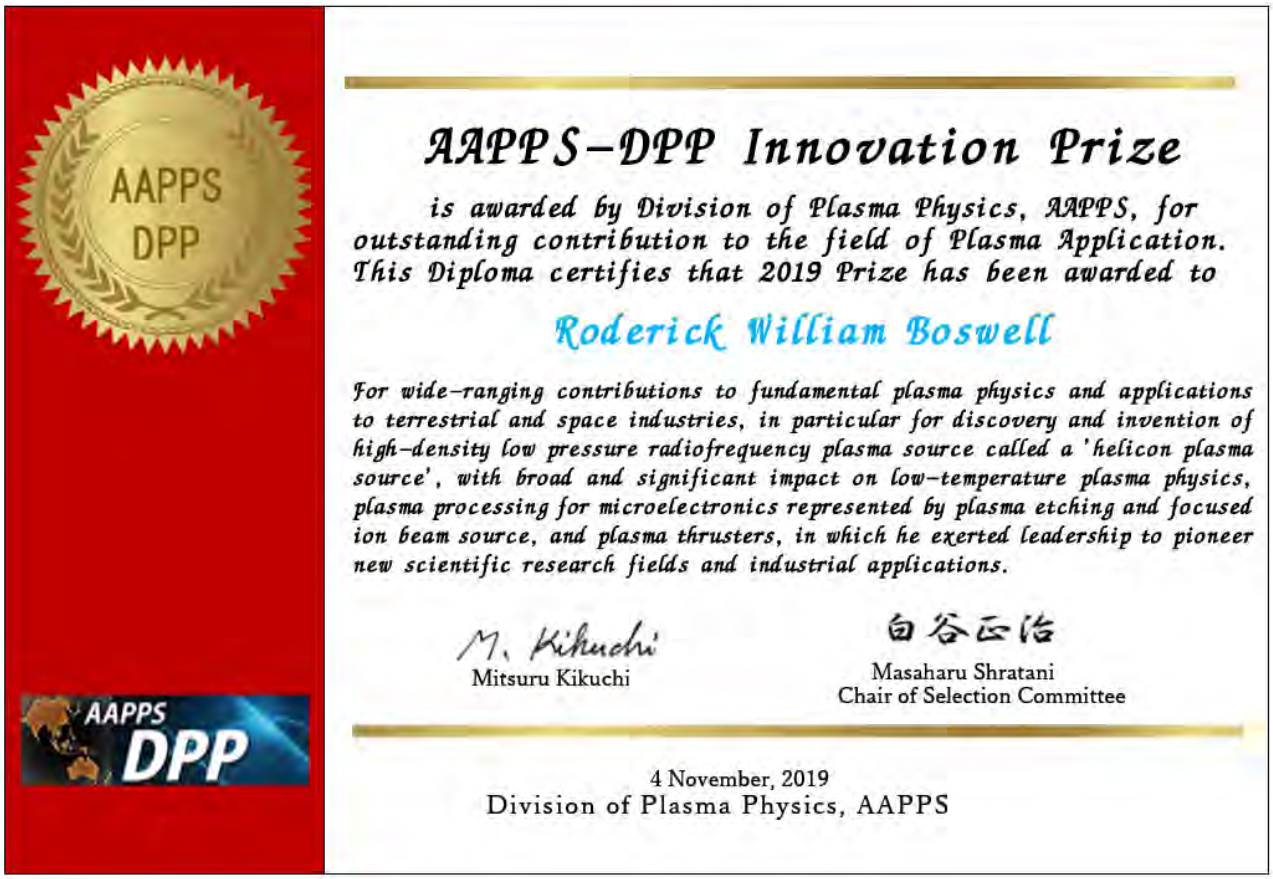
The Selection Committee recommends that the AAPPS-DPP Plasma Innovation Prize for the year 2019 be awarded to Professor R. W. Boswell.

The proposed award citation for the awardee is as follows:
Roderick William Boswell: "For wide-ranging contributions to fundamental plasma physics and applications to terrestrial and space industries, in particular for discovery and invention of high-density low pressure radiofrequency plasma source called a 'helicon plasma source', with broad and significant impact on low-temperature plasma physics, plasma processing for microelectronics represented by plasma etching and focused ion beam source, and plasma thrusters, in which he exerted leadership to pioneer new scientific research fields and industrial applications."

Sincerely yours,
白谷正治
Masaharu Shiratani
Chair,
Selection Committee of AAPPS-DPP Plasma Innovation Prize 2019.

Director of Center of Plasma Nano-Engineering
Dean of Graduate School of Information Science and Electrical Engineering
Professor
Kyushu University

Fig. 1 Decision letter from the selection committee



AAPPS DPP

AAPPS–DPP Innovation Prize

is awarded by Division of Plasma Physics, AAPPS, for outstanding contribution to the field of Plasma Application. This Diploma certifies that 2019 Prize has been awarded to

Roderick William Boswell

For wide-ranging contributions to fundamental plasma physics and applications to terrestrial and space industries, in particular for discovery and invention of high-density low pressure radiofrequency plasma source called a 'helicon plasma source', with broad and significant impact on low-temperature plasma physics, plasma processing for microelectronics represented by plasma etching and focused ion beam source, and plasma thrusters, in which he exerted leadership to pioneer new scientific research fields and industrial applications.

M. Kikuchi
Mitsuru Kikuchi

白谷正治
Masaharu Shratani
Chair of Selection Committee

4 November, 2019
Division of Plasma Physics, AAPPS

AAPPS DPP

Certificate, medal and cash prize will be given at the 3rd Asia-Pacific Conference on Plasma Physics in November 4 at Hefei, China.