IUVSTA **NEWS FLASH**

Number: 8 May 2018

Union Internationale Pour La Science, La Technique et Les Applications du Vide
International Union for Vacuum Science, Technique and Applications
Internationale Union für Vakuum Forschung, Technik und Anwendung

A New IUVSTA/EBARA Award Established

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In accordance with the strategic objectives of the Union for sustainable societal development, IUVSTA has established a new scientific Award sponsored by EBARA for an excellent young researcher, to be given in a dedicated ceremony at IVC-21 next year. The award will inspire young researchers and engineers to work on environmentally friendly solutions in the area of vacuum-related science and technologies. It is expected that the projects submitted to the Award will be related to vacuum science and technologies and demonstrate considerable environmental benefits. Projects expected to be carried out at a university or an industry laboratory with no restriction on the location of the project. However, visibility with respect for environmental protection is important.

Vacuum equipment is an essential element in the production value chain of semiconductors, solar cells, LED, E-mobility batteries, etc. that account for markets of several 100s of billion dollars. In that respect, vacuum equipment is an enabler for the environmental benefit of these mainstream technologies. The advancement of vacuum equipment and technology does not just enable the creation of areas with close-to-zero pressure, but is an integral part of facing the challenge of increasingly complex production processes by enabling manufacturers to manage corrosive gases with equipment that is fully connected digitally, enabling low maintenance, and ability to withstand harsh environments.

Hence, advancements in vacuum technology enable progress in mainstream technologies, especially with respect to reducing impact on the environment. The crucial role of vacuum technology as a keystone technology deserves increased awareness. IUVSTA has therefore decided to establish an award for environmentally friendly vacuum science and technology. It is for the same reason that EBARA has decided to sponsor this award.

IUVSTA and EBARA herewith announce this award. Young researchers working in the area of vacuum science and technology should feel inspired to participate in a contest for the development of environmentally friendly vacuum technologies. The winner will be awarded a prize to the amount of 3000 euros at the IVC21 event in Malmö/Sweden, July 1-5. The kick-off, application procedure and further details of project content and scope will be communicated by IUVSTA in the coming months.

Prof. Lars Montelius, IUVSTA President, commented, ”We are excited about the collaboration with EBARA in the creation of this award for outstanding young researchers. The prize will highlight the enabling character of Vacuum Science and Technologies for a sound sustainable societal development. The prize will pave the way for an increased interest for, and understanding of, the importance of Vacuum Science and Technology in and for society at large.”

Dr. Manabu Tsujimura Chief Technology Officer of EBARA, commented, "We are very happy to be collaborating with IUVSTA to create this award for young researchers supporting the development of vacuum technology, that helps further cutting-edge technologies in other areas such as semiconductor manufacturing. Through this award, we hope to promote active research and development into environmentally friendly vacuum technology."

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About the Sponsor, EBARA:

EBARA, established as a pump manufacturer in 1912, has continued to develop, manufacture, sell, and supply products matched to society's needs. Today, the Group is a conglomerate of its three core businesses: the mainstay Fluid Machinery & Systems Business, which supplies pumps, compressors, and other rotating machinery; the Environmental Plants Business, which handles environment related plants; and the Precision Machinery Business, which produces equipment and devices related to semiconductor manufacturing.

EBARA has a long history of contributing to society through its business and of acting in response to the needs of the environment. Currently, the public awareness of environmental issues is high and is a main driver of change for society and the economy worldwide. Following its own tradition of responding to environmental needs, in addition to the increasing public awareness of environmental issues, EBARA takes a leading role in protecting the environment in many areas: at its production sites, with the design of its products and by engaging in business segments relevant to environmental protection. In addition, EBARA is committed to developing technologies which reduce the amount of energy used to move our products, applying ourselves to the field of resource recycling (regeneration and reuse), offering products that prevent the atmospheric emissions of greenhouse gases (GHG) arising from manufacturing processes, and working to lengthen product life through overhaul, product repair and maintenance.

Semiconductors, solar cells, LED and batteries for E-mobility, etc. are increasing. The increase in semiconductor devices is unfortunately contributing to rising GHG emissions. Semiconductor products alone, for example, account 2% of worldwide CO2 emissions, and are in an upward trend. This adds to the need for semiconductor devices that require less power to operate. Vacuum pumps are of help to achieve this goal. LEDs, solar cells and E-mobility batteries have a low CO2 footprint and are continuously replacing the "old" high-CO2 footprint technologies: LED replacing light bulbs, solar cells and E-mobility replacing oil, gas and coal. Also here vacuum pumps play an important role. Vacuum pumps help to accelerate the replacement.

EBARA is an important player in these mainstream areas. For example, until the 1980s, the vacuum pump used in the semiconductor manufacturing field was an oil rotary pump. It was during this time that EBARA offered customers a dry vacuum pump in conjunction with an exhaust gas treatment device, and in the long run was able to contribute to the full transition to dry vacuum pumps in this field. EBARA also reduced power consumption by 83% with the current EV-S model dry vacuum pump compared to the A70W dry vacuum pump released in 1991. EBARA products are distinguished by features contributing to environmental protection, like low energy consumption.

EBARA´s products – vacuum pumps and abatement equipment – have a tremendous impact on GHG emissions in the production areas of semiconductors, LED, solar cells and batteries for E-mobility. EBARA vacuum pumps are designed to handle special materials which enable the design of semiconductors that consume less power. EBARA dry pumps have the best-in-class design for the pump-down of special gases at LED production. The robustness and low maintenance features make EBARA dry vacuum pumps a key component at PV-cell production. EBARA abatement systems will crack PFC gases at semiconductor production at highest efficiency level, thus preventing the emission of PFCs and helping to protect the ozone layer.

EBARA PDV model pumps