



Eni Awards: appointed the winners for the 2015 edition

San Donato Milanese, 29 May 2015 - Eni has announced the names of the researchers and scientists who have been honoured at the eighth edition of the Eni Awards, established in 2007, which over the years have become an international point of reference for research in the fields of energy and the environment. The Awards aim to promote a better use of energy sources and inspire new generations of researchers, reflecting the importance Eni attaches to scientific research and sustainability issues.

The “New Frontiers of Hydrocarbons Prize” Award for the Upstream category went to **Johan Olof Anders Robertsson**, of the ETH in Zurich. With help from Dirk-Jan van Manen, Ali Özbek, Massimiliano Vassallo and Kemal Özdemir, his research focused on the development of an innovative technology for the acquisition and modelling of sea prospecting data using acoustic (seismic) methods, and which are capable of overcoming the current limits of visualisation and characterisation of existing underground characteristics, while also respecting the environment. Since seismic prospecting is the basis of all modern oil exploration activities, improved technology allows a more accurate reconstruction of underground structures making the recognition of those with highest oil potential more reliable. The direct consequence is an advantage in the technical and economic components of Oil & Gas projects from the earliest stages of their development.

For the Downstream category, the Award went to **Helmut Schwarz** of the Technische Universität in Berlin. The work of Prof. Schwarz focused on a fundamental problem of modern research: the activation of methane for its conversion into heavier (such as ethane/ethylene) or oxygenated (such as methanol, formaldehyde) hydrocarbons. This direct transformation may make exploitation of the huge reserves of natural gas present in remote fields and its transportation to areas of use more feasible. The extensive research conducted by Prof. Schwarz with the combined use of experimental techniques and advanced theoretical

approaches is a primary source of knowledge on these reactions and the results obtained could lead to important technological discoveries in the near future.

The Award for the “Renewable Energy Prize” category went to **Mercouri Kanatzidis**, from Northwestern University in Evanston (Illinois, USA), one of the international leaders in solid state chemistry. His research focuses on the development of new solid state semiconductors able to recover waste heat and convert it directly into electricity. More specifically, in having “nanostructured” the material of these thermoelectric semiconductors, i.e. having added nanocrystals with certain compositions which, at high temperatures, lead to a significant increase in performance. In practice, the 40-year old record of efficiency in heat-electricity conversion has now been surpassed and the basis for further development, including the implementation of veritable thermoelectric generators, has been provided. It has been estimated that the technologies that could be developed as a result of the work of Prof. Kanatzidis could allow the recovery of at least 50GW on a global scale.

Menachem Elimelech, Professor at Yale University, received the “Protection of the Environment Prize” Award. Prof. Elimelech is considered a pioneer in application of the “Forward Osmosis” process for the desalination of high salinity water. The innovative process, which uses low-grade heat as its energy source, is used for the treatment of water associated with oil activities, and has proved to be more energy efficient and environmentally-friendly than current desalination technologies

Prof. Elimelech is considered one of the leading researchers in the world, as well as a point of reference in the field of water quality engineering and membrane technology for water desalination and reuse.

The two “Debut in research” Awards, given to researchers under 30 years of age who have acquired a PhD at an Italian University, went to **Daniela Meroni** and **Margherita Maiuri**

The thesis of **Daniela Meroni** addresses the applicability of titanium dioxide (TiO₂) in the environmental reclamation processes, which are considered very promising due to their limited costs, non-toxicity and stability. Although a number of commercial applications are already available on the market, many issues remain to be addressed in order to obtain

materials with higher efficiency and durability. The research of Dr. Meroni explores the most critical points of TiO₂, identifying solutions for more efficient TiO₂ photocatalysts for the removal of air (VOCs) and water pollutants, brilliantly addressing both theoretical and application aspects, and always developed within the context of environmental protection and reclamation processes.

The thesis of **Margherita Maiuri** studies the main mechanisms that govern the collection of solar radiation via the spectroscopic observation of ultrashort optical pulses. The exceptional scientific quality of the work carried out is demonstrated by the publication of the results in high-level international scientific journals such as Science, Journal of the American Chemical Society and Nature Materials.

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