



The 2022 Eni Awards: Eni's scientific research prizes were awarded today in the presence of the President of the Republic

The 'Eni Joule for Entrepreneurship' special mention was also awarded to honour the best innovative and sustainable business ideas

Rome, 3 October 2022 - The Eni Awards ceremony was held today at the Quirinal Palace in the presence of the President of the Republic **Sergio Mattarella**, Eni's Chairwoman **Lucia Calvosa** and Eni's CEO **Claudio Descalzi**.

Now in its fourteenth year, the prize, also known as the “Nobel Prize for Energy”, is considered an international benchmark for research in energy and the environment and is testament to how important scientific research and innovation is for Eni. There have been over 10,000 applications since it was established in 2008. The Scientific Commission, which assesses the different types of research submitted, is made up of scientists from top global research institutions and has seen the participation of 6 Nobel prizewinners over the years.

Once again this year, through **Joule**, its Business School, Eni has awarded the Eni Joule for Entrepreneurship Special Mention, intended for teams, university spin-offs and start-ups and aimed at fostering the **application, enhancement and transfer of technologies** while promoting the creation of a **sustainable innovation** ecosystem.

In the 2022 edition of the Eni Award:

1. The **Energy Transition** award has been given to **Naomi Halas** and **Peter Nordlander** from **Rice University** (Houston Texas), for their research on **Antenna-Reactor plasmonic photocatalysis for sustainable hydrogen generation and distribution**. The two researchers developed new catalytic systems and devices capable of harnessing light energy to run important chemical processes, including the production of hydrogen. Increasingly widespread and sustainable hydrogen production will help accelerate the achievement of net zero.

2. For their research into renewable energies and energy storage, the **Energy Frontiers** award has been given to **Jens Nørskov** and **Ib Chorkendorff** from the **Technical University of Denmark** for their work on the **Sustainable production of fuels and chemical products - the electrochemical synthesis of ammonia at low pressure and temperature**. They developed a lithium-mediated, renewable energy-activated cyclic electrochemical process for the production of ammonia at room temperature and pressure. Ammonia is one of the main basic chemicals used in the production of fertilisers and many other by-products, as well as a candidate as a renewable energy carrier;
3. Lastly, the award for **Advanced Environmental Solutions**, dedicated to research into air, water and land protection and the redevelopment of industrial sites, was given to **Geoffrey Coates** from **Cornell University** (Ithaca, New York) for his research on the **Development of new macromolecular structures to solve the end-of-life problems of plastics**. Prof. Coates developed industrial-scale methodologies for obtaining polymers with reduced environmental impacts in four specific areas: chemically recyclable plastics; mechanical recycling of plastics; photodegradable plastics; and biodegradable plastics from renewable raw materials. His research paves the way towards the development of scientific and technological solutions to minimise the negative environmental impact of polymeric materials and plastics.
4. The **Young Talents from Africa** section, established in 2017 on the 10th anniversary of the Eni Award and dedicated to young talents from the African Continent, awarded four prizes in this year's edition. The honorees are **Yousif ADAM** of The American University in Cairo, Egypt, **Ibrahim Mohamed Ibrahim Moustafa IBRAHIM** of the Arab Academy for Science, Technology and Maritime Transport, Egypt, **Andsera Adugna MEKONEN** of Addis Ababa University, Ethiopia, and **Andris Metumo SIMEON** of the University of Cape Town, South Africa. The winners of the award will receive a scholarship that will enable them to attend PhD courses at the Polytechnic University in Turin and the "Federico II" University in Naples to further their knowledge and develop their innovative ideas. Adam's proposal concerns sustainable wastewater management in Africa based on the use of microalgae in the context of the Circular Economy. Ibrahim proposed a theory developing an advanced predictive approach for estimating energy generation from solar power plants. Mekonen carried out a sustainable agroforestry ecosystem study using Earth observation and

environmental sensing in central Ethiopia. Finally, Simeon developed a study on smart adaptive protection strategies for hybrid microgrids.

5. For the ***Young Researcher of the Year Award***, which honours two researchers who have completed their PhDs at Italian universities, the awards were given to **Fiorello Isabella** and **Giulia Fredi**.

Fiorello completed her PhD at Sant'Anna Post-Graduate School and developed mini robots inspired by climbing plants paving the way towards new sustainable and smart strategies that are applicable to precision agriculture and can contribute to preserving natural resources.

Fredi, a researcher at the University of Trento, conducted a study on polymer composite materials that combine a high mechanical performance with the ability to store and release heat. They can be used for applications in the field of thermal energy storage.

6. For the ***Eni Innovation Award*** category, which selects the most revolutionary projects developed by Eni researchers and technical experts, awards were given to:
 1. **P. Biagini, R. Po' (Eni), F. Bisconti, A. Giuri, A. Rizzo and S. Colella (CNR-Nanotec, Lecce)**, for patenting perovskite-based semi-transparent photovoltaic cells and the process to produce them;
 2. **G. Gatti, C. Perretta (Eni-Versalis)** for developing an innovative solution implementing a line of new products containing recycled material from end-of-life tyres;
 3. **A. Chiodini, S. Loda, F. Rubertelli (Eni)** for developing an automatic device (e-lorec®) for recovering dense non-aqueous phase liquids from contaminated aquifers.

The “Eni Joule for Entrepreneurship” Special Mention was awarded to three start-ups that distinguished themselves for the innovativeness and sustainability of their proposed business projects:

7. **AraBat:**

Early stage start-up (TRL 4) from Foggia that develops innovative processes for the recycling of spent lithium batteries and the reintegration of recovered precious metals through an innovative system using agro-food waste. The team consists of five young Apulian professionals (engineers, chemists, economists) who developed the project at the University of Foggia and is represented by Raffaele Nacchiero (CEO and co-founder).

8. **Sinergy Flow:**

An early-stage start-up (TRL 4) from Milan proposing an innovative battery for medium- and large-scale stationary energy storage. The flow cell battery uses sulphur-rich waste from the petrochemical industry with a low installation cost and high performance. The team consists of 3 young engineers who developed the project at the Polytechnic University of Milan and is represented by Alessandra Accogli (CEO and co-founder).

9. **Ricehouse:**

A start-up from Milan with a very high level of maturity (TRL 9) that transforms rice processing waste into natural materials for sustainable housing and bio-architecture. Today it has become a benefit company and has around 15 employees (aged between 24 and 44) and is represented by Tiziana Monterisi (CEO and co-founder).

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