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Axalta's Distinguished Lecture Series at the University of Pennsylvania Features Presentation on Artificial Photosynthesis for Generating Liquid Fuels and Biomass from Water and CO₂

Harvard Professor Daniel Nocera Develops Artificial Leaf for Conversion of Sunlight to Storable Energy

PHILADELPHIA--(BUSINESS WIRE)-- Professor Daniel G. Nocera, the Patterson Rockwood Professor of Energy at Harvard University, was the honored speaker at this year's *Axalta Distinguished Lecture Series*. Axalta Coating Systems (NYSE: AXTA), a leading global supplier of liquid and powder coatings, sponsored the event which was hosted by the Department of Chemistry at the University of Pennsylvania last week. Professor Nocera's lecture titled, *A Complete Artificial Photosynthesis*, explained his breakthrough research that led to the development of a highly efficient, artificial device that converts water and carbon dioxide into biomass and liquid fuels using sunlight.

This Smart News Release features multimedia. View the full release here:

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One of the challenges with using solar energy as a source of electricity is the need for a cost effective method to store the sun's energy. One example of energy storage is photosynthesis, the process whereby plants and other organisms use sunlight to convert water and carbon dioxide into biomass that can be used later, as needed, as a source of fuel. Professor Nocera has mimicked key aspects of this process by creating an artificial leaf.

"We first invented an artificial leaf that can split water into hydrogen and oxygen using sunlight," said Professor Nocera. "We then used a bio-engineered bacterium to convert carbon dioxide along with the hydrogen produced from the artificial leaf into biomass and liquid fuels. The hybrid microbial and artificial leaf operate at unprecedented solar-to-biomass (10.7%) and solar-to-fuels (6.2%) yields, greatly exceeding the 1% yield of natural photosynthesis," stated Professor Nocera.

"At Axalta, we are committed to delivering innovative new coatings solutions that beautify and protect our customers' products," said Dr. Barry Snyder, Axalta Senior Vice President



Left to right: Dan Nocera, Lecture Speaker and Patterson Rockwood Professor of Energy at Harvard University; Ivan Dmochowski, Professor of Chemistry at the University of Pennsylvania; and Barry Snyder, Axalta's Senior Vice President and Chief Technology Officer (Photo: Axalta)

and Chief Technology Officer. "Our sustainable coating systems benefit many stakeholders, including our customers and the communities in which we operate. Professor Nocera's pioneering research has the potential to have a tremendous impact by offering a sustainable source of energy. The translation of fundamental research to practical application, as embodied in Professor Nocera's research, is a key element of the collaboration between Axalta and the Department of Chemistry at the University of Pennsylvania."

"The Axalta Distinguished Lecture Series provides great opportunities for our students and faculty members to interact with some of the most eminent scholars in the world," said Gary A. Molander, Department Chair and Hirschmann-Makineni Professor of Chemistry at the University of Pennsylvania. "This year, we are delighted to have Professor Nocera share his breakthrough innovations with us. Professor Nocera's work exemplifies the opportunities that exist to use fundamental science to create new technologies that have broad societal benefits. We look forward to continued collaboration with Axalta in the years ahead."

Past speakers have included world renowned scientists, including Nobel Prize laureates William Moerner (Chemistry 2014), Robert Grubbs (Chemistry 2005), Ahmed Zewail (Chemistry 1999), Steven Chu (Physics 1997), Harold Kroto (Chemistry 1996), Richard Smalley (Chemistry 1996), George Olah (Chemistry 1994), P.G. de Gennes (Physics 1991), Elias Corey (Chemistry 1990), Thomas Cech (Chemistry 1989), Donald Cram (Chemistry 1987), Jean-Marie Lehn (Chemistry 1987), John Polanyi (Chemistry 1986), Yuan Lee (Chemistry 1986), Roald Hoffmann (Chemistry 1981), and Herbert Brown (Chemistry 1979).

About Axalta Coating Systems – Celebrating 150 Years in the Coatings Industry

Axalta is a leading global company focused solely on coatings and providing customers with

innovative, colorful, beautiful and sustainable solutions. From light OEM vehicles, commercial vehicles and refinish applications to electric motors, buildings and pipelines, our coatings are designed to prevent corrosion, increase productivity and enable the materials we coat to last longer. With 150 years of experience in the coatings industry, the approximately 12,800 people of Axalta continue to find ways to serve our more than 100,000 customers in 130 countries better every day with the finest coatings, application systems and technology. For more information visit axaltacoatingsystems.com and follow us @Axalta on [Twitter](#) and on [LinkedIn](#).

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