Tip Sheet: Caltech Researchers Presenting At AAAS

EurekAlert

At this year's American Association for the Advancement of Science (AAAS) meeting in Washington, D.C., February 17 to 21, Caltech researchers will present topics ranging from solar and renewable energy solutions to the latest advancements in bioengineering. Caltech's Alice S. Huang, AAAS president, will deliver the President's Address at the opening ceremony, highlighting this year's AAAS theme, "Science Without Borders."

Friday, February 18

Session: Portraits of the California Energy System in 2050: Cutting Emissions by 80 Percent
Title: The Future of Game-Changing Energy Technologies
Presenter: Nathan Lewis
Director, Joint Center for Artificial Photosynthesis;
George L. Argyros Professor and professor of chemistry at Caltech

In President Obama's recent State of the Union address, he commented on the sustainable future of America and the innovative solutions under way at Caltech, stating, "At the California Institute of Technology, they're developing a way to turn sunlight and water into fuel for our cars..."

And by executive order of the governor, California is to reduce greenhouse gas emissions to 80 percent below 1990 levels by 2050, while energy demand is projected to double. There are four key questions whose answers will determine the energy system of the future: How much can we control or decrease demand? How fast can we electrify light-duty transportation and most heating? How can we decarbonize electricity through a combination of nuclear power, carbon capture and sequestration, and renewable energy? How much sustainable carbon-neutral biofuel will we have? In this session, Lewis will address some of the strategies for achieving our clean energy goals.

For more information, see: http://jcap.caltech.edu [1]

Time: 4:00 PM
Location: Salon 206, Washington Convention Center

Saturday, February 19

Session: Powering the Planet: Generation of Clean Fuels from Sunlight and Water
Title: Sunlight-Driven Hydrogen Formation by Membrane-Supported Photochemical

Water Splitting
Presenter: Nathan Lewis
Director, Joint Center for Artificial Photosynthesis;
George L. Argyros Professor and professor of Chemistry at Caltech

The demand for energy, primarily from emerging economies, will double by 2050. The countervailing urgency of the threat of climate change requires a major shift in our energy sourcing, creating four new trends that will shape the current century: electrification, decarbonization, localization, and optimization. Among the renewable energy sources, only two are global in scale: biofuels and solar energy. Solar-fuel energy is one of the "holy grails" in the 21st century-the economical conversion of solar energy into stored chemical fuels. Lewis will discuss one of the solar-driven hydrogen methodologies for achieving more efficient generation of energy and clean fuels.

For more information, see: http://nsl.caltech.edu [2]

Time: 9:30 AM
Location: Salon 206, Washington Convention Center

Plenary Lecture: Design and Evolution: Engineering Biology in the 21st Century
Presenter: Frances H. Arnold
Dick and Barbara Dickinson Professor of Chemical Engineering, Bioengineering and Biochemistry at Caltech

Frances Arnold is a pioneer in the use of methods of laboratory evolution to generate novel and useful enzymes and organisms for applications in medicine and in alternative energy. Her multidisciplinary approach reveals insight into the way natural evolution might have occurred. She holds more than 20 patents and patent applications. She was recently named co-recipient of the Charles Stark Draper Prize by the National Academy of Engineering. Considered the engineering profession's highest honor, the Draper Prize was awarded to Arnold for her role in developing a method called directed evolution, used worldwide to guide the creation of certain properties in proteins and cells, allowing the engineering of novel enzymes and biocatalytic processes for pharmaceutical and chemical products.

Time: 5:00 to 6:00 PM Location: East Salon, Washington Convention Center

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http://www.chem.info/news/2011/02/tip-sheet-caltech-researchers-presenting-aaas?qt-most_popular=0

Links:
[1] http://jcap.caltech.edu
[2] http://nsl.caltech.edu

[3] http://www.eurekalert.org/pub_releases/2011-02/ciot-tsc021711.php