

Argonne-China collaborations benefit both nations

Scientists and engineers at the U.S. Department of Energy's (DOE) Argonne National Laboratory often work with Chinese colleagues to conduct basic scientific research and to help solve energy and environmental challenges facing the people of China and the United States.

Energy

DOE and China's Ministry of Science and Technology have a five-year agreement to promote large-scale deployment of next-generation vehicle technologies. This collaboration includes research to advance clean, energy-efficient transportation, a cleaner environment, energy security and sustained economic growth.

In July 2010, Wan Gang, Minister of Science and Technology of the People's Republic of China, visited Argonne to learn about the laboratory's alternative energy research. Since 2003 Argonne has worked with the China Automotive Technology and Research Center (CATARC) to promote energy-efficient vehicle technologies and clean transportation fuels in China. CATARC uses two of Argonne's award-winning software packages – Powertrain System Analysis Toolkit (PSAT), and Greenhouse gases, Regulated Emissions, and Energy use in Transportation (GREET) – to evaluate China's existing vehicles; to understand the interrelationships among performance, fuel economy and emissions; and to design new, advanced-technology vehicles.

A team of researchers from Argonne and Tongji University uses the Advanced Photon Source (APS) at Argonne to study the plume from a biodiesel fuel injector. This research is helping improve combustion efficiency and reduce emissions for biodiesel-fueled engines.

Environment

Argonne scientists worked with colleagues from Tsinghua University, Peking University, the Chinese Academy of Sciences, the U.S. Environmental Protection Agency and the University of Tennessee to improve the air quality of Beijing for the 2008 Summer Olympics. The study was widely cited by Chinese policy makers, including Beijing's mayor.

Basic research

Scientists from the Chinese Academy of Science, the Harbin Institute of Technology, Jilin University, Northeastern University and Shanghai Jiao Tong University conduct research at the APS. Recent research determined the structure of a key protein complex in bird flu. Performed jointly by Chinese and Argonne scientists, this research was funded by the National Natural Science Foundation of China, the Chinese Ministry of Science and Technology and DOE's Office of Biological and Environmental Research. The APS also has a memorandum of understanding with the Shanghai Synchrotron Radiation Facility to perform cooperative work in areas of mutual interest, including developing synchrotron radiation facilities and instruments.

Nuclear non-proliferation

Argonne worked with the China Institute of Atomic Energy and Idaho National Laboratory to organize the November 2009 International Meeting on Reduced Enrichment for Research and Test Reactors in Beijing. The conference focused on converting research and test reactors to use low-enriched uranium fuel that is unsuitable for use in weapons. The meeting was attended by more than 180 technical and policy experts from 29 countries and the International Atomic Energy Agency.



Don Hillebrand (right), director of Argonne's Center for Transportation Research, briefs Minister Wan Gang on Argonne's Engine Research Facility. Lian Wang (center), a translator from MOST, looks on.