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NETL NEWS

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NETL RESEARCHER RECEIVES AWARD FOR OUTSTANDING INNOVATION IN ENERGY

Morgantown, W.Va. — The Carnegie Science Center has honored Dr. Shiwoo Lee of the National Energy Technology Laboratory (NETL) with an Outstanding Innovation in Energy Award. Dr. Lee was chosen in recognition of his development of a manufacturing method that significantly improves the efficiency of solid oxide fuel cells (SOFCs)—an efficient, combustion-less, virtually pollution-free power source capable of using fossil fuels. Dr. Lee will receive his award on May 6, 2016, at the 20th Annual Carnegie Science Award celebration at the Carnegie Music Hall in Oakland, PA.

Lee graduated from Yonsei University in Seoul, Korea, earning a B.S. in ceramics science and engineering before moving on to the Korea Advanced Institute of Science and Technology (KAIST) in Daejeon, Korea, where he earned M.S. and Ph.D. degrees in materials science and engineering. Dr. Lee worked as a senior researcher at the Korea Institute of Energy Research (KIER) and as a postdoctoral researcher at the University of Pennsylvania. Dr. Lee first became affiliated with NETL in 2010 as a National Research Council senior research fellow, leading research on SOFC cathode and catalyst development.

Currently, Lee is a research engineer with AECOM on NETL's Fuel Cell Team, where, along with his research colleagues, he is working to make SOFCs economically attractive for widespread and industry use, including potential fuel cell manufacturers in western Pennsylvania area. Lee's technique has already garnered interest from multiple partners across the country.

The one-step cathode infiltration technique developed by Lee and his colleagues involves a novel catalyst, which increases the rate of chemical reactions, and an accompanying manufacturing process to apply the catalyst onto the cathodes of SOFCs. Infiltration

facilitates reactions inside the SOFCs, which are electrochemical devices, and dramatically improves their efficiency. The technique marks a transformative achievement in energy innovation. SOFCs have the potential to be one of the cleanest and most efficient energy technologies for direct conversion of chemical fuels, which can be derived from fossil energy resources, to electricity.

NETL is a U.S. Department of Energy national laboratory that produces technological solutions to America's energy challenges. For more than 100 years, the laboratory has focused on developing tools and processes to provide clean, reliable, and affordable energy to the American people. Three NETL research sites—Albany, Ore., Morgantown, W.Va., and Pittsburgh, Pa.—conduct a broad range of energy and environmental research and development activities that support DOE's mission to advance the national, economic, and energy security of the United States.

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