

Prof. Radoslav Adžić

Prof. Radoslav Adžić is a senior scientist emeritus in Brookhaven National Laboratory Chemistry Division, and adjunct professor at Stony Brook University, USA.

Adžić started his career in Serbia, working at the Institute of Electrochemistry at the University of Belgrade from 1965 to 1992. He earned a Ph.D. in chemistry at University of Belgrade in 1974, and served as research director from 1978 to 1983 and as director until 1992 at the Institute of Electrochemistry, University of Belgrade. He first came to Brookhaven Lab and stayed briefly as a visiting scientist in 1979, returning for good as a senior research associate in 1992. At the Lab, he was promoted to scientist in 1993, chemist in 2001, and chemist with tenure in 2005. He was leader of the Surface Electrochemistry and Electrocatalysis group for the past decade and retired on Oct. 20, 2017.

Electrocatalysts increase the rate of chemical reactions that produce or use electricity. Adžić's highest impact research and development (R&D) has been with electrocatalysis for energy applications, particularly with fuel cells that produce electricity—with the only byproducts being water and heat. Adžić pioneered scientific understanding of electrocatalysis in surface structures and monolayers, showing that carefully tuning materials in layers where reactions occur could increase activity and stability while reducing the required amounts of expensive metals, such as platinum. Prof. Adžić introduced and championed the concept of core-shell electrocatalysts to increase performance and durability while decreasing the cost of low-temperature hydrogen fuel cells. His group also applied these concepts to demonstrate more cost effective electrolyzers—which use electricity to split water into hydrogen and oxygen—that reduce costs for future sustainable hydrogen production from renewable electrical energy.

Prof. Adžić's research group has demonstrated that small amounts of performance-enhancing "dopants"—gold, in particular—can improve activity and durability in platinum-based electrocatalysts for fuel cells. His research also advanced multicomponent and monolayer electrocatalysts for electro-oxidation of organic compounds, such as methanol and ethanol, that are promising liquid fuels for fuel cell operation, but are difficult to efficiently catalyze.

Prof. Adžić has authored or co-authored more than 300 publications that have been cited 23,000 times, h index 73. He has 21 issued patents and approximately 15 pending applications filed. Several patents have been licensed by two catalyst companies for commercial products. He is a fellow of the Electrochemical Society and the International Society of Electrochemistry and correspondent member of Serbian Academy of Sciences and Arts. In addition to being named a Battelle Inventor of the Year and receiving several other inventor prizes, he was presented with the U.S. Department of Energy's Hydrogen Program R&D Award twice—in 2008 and 2012—and an R&D100 Award in 2012.