



Igor K. Lednev

Winner, 2022 FACSS Charles Mann Award in Raman Spectroscopy

Igor K. Lednev is a Distinguished Professor in the Department of Chemistry, University at Albany, State University of New York. He is an Adjunct Professor in the Department of Biological Sciences and a faculty Member of the RNA Institute. Lednev is a cofounder and CTO of *SupreMEtric LLC* (www.supremetric.com) commercializing a patented technology for forensic purposes, and *Early Alzheimer's Diagnostics LLC*, developing saliva and blood tests for the early disease diagnostics. Lednev has served as an advisory member on the White House Subcommittee for Forensic Science. Together with the National Institute of Justice (NIJ) he organized the *1st NIJ Forensic Science Symposium at Pittcon* in 2018, which became an annual event including 34 invited talks and a poster session.

Lednev's research is focused on the development and application of novel laser spectroscopy for forensic purposes, medical diagnostics and fundamental biochemistry. His accomplishments include the development a universal method for confirmatory identification of all main body fluids using Raman spectroscopy. The method allows for differentiating human and animal blood and determining the time-since-deposition of bloodstains up to two years. Lednev's laboratory further expanded the developed methodology for phenotype profiling based on dry tares of body fluids including determining race, sex, and age group of the donor. Lednev works closely with state crime laboratories to implement this novel technology to the practice.

Lednev laboratory introduced novel spectroscopic methods for characterizing the structure and formation mechanism of amyloid fibrils associated with neurodegenerative diseases. A new protein folding-aggregation phenomenon of spontaneous rearrangement of amyloid fibrils from one polymorph to another was discovered. According to *Future Medicinal Chemistry* magazine, this discovery opens the opportunity for a new therapeutic approach for neurodegenerative diseases. Lednev laboratory used the combination of Raman hyperspectroscopy and machine learning for developing noninvasive methods for disease diagnostics.

Lednev has co-authored over 250 publications in peer-reviewed journals and 8 patents. His h-index is 64 (<https://scholar.google.ca/citations?user=B-fwZwMAAAAJ&hl=en>). His work has been covered by media more than 90 times including 11 TV interviews, and publications in *the Wall Street Journal*, *Chemical & Engineering News*, *Forensic Magazine*, etc. Congressman Tonko has acknowledged Dr. Lednev's research accomplishments at the U.S. House of Representatives Hearing on Advancements in Forensic Science in the U.S. in September 2019. Dr. Lednev was recruited by the United Nations to give a week-long "National Training Course on using vibrational techniques to enhance the forensic analysis" in Santiago, Chile, in January 2020.

Lednev is a Fellow of the Royal Society and the Society for Applied Spectroscopy. He received Gold Medal Award from the NY/NJ Section of the Society for Applied Spectroscopy, Guest Prof. Fellowship from the Friedrich-Schiller-University, Research Innovation Award from Research Corporation, Chancellor's Award for Excellence in Scholarship and Creative Activities, and CAS Dean's Award for Outstanding Achievements in Teaching.