

NATIONAL INSTITUTE OF JUSTICE GRADUATE FELLOWSHIP

SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS



NIJ Graduate Research Fellowship Program

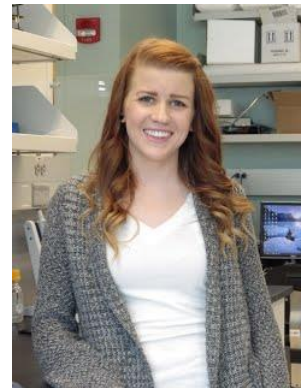
The National Institute of Justice (NIJ) Graduate Research Fellowship (GRF) program supports doctoral students engaged in research of interest to the NIJ. The GRF program has two tracks, grouped by academic area of study: the Social and Behavioral Sciences program and the Science, Technology, Engineering and Mathematics (STEM) program. Each track issues its own solicitation once per year. By supporting outstanding graduate research, NIJ is expanding the future pool of young investigators pursuing research with the potential to provide STEM-based solutions to issues that affect public safety, crime, and the fair and impartial administration of criminal justice in the United States.

Kyle C. Doty earned his B.A. in Chemistry and B.S. in Forensic Chemistry from SUNY Buffalo State College in 2009. From 2010 to 2012 he worked as a formulation scientist in the division of research & development at Bausch + Lomb, Inc. He just started his fourth year as a doctoral student, working under the mentorship of Dr. Igor Lednev.



Kyle's NIJ GRF STEM award, titled "Forensic Investigation of Bloodstains Using Raman Spectroscopy and Chemometrics: species differentiation, kinetic changes, donor age, and potential false positives," will focus on creating new methodology that is rapid, nondestructive, robust, statistically reliable, and safe as a way to expand upon the type of information currently obtained from evidentiary bloodstains. The specific aims will be to determine the (i) time since deposition (TSD) and (ii) chronological age of a donor for bloodstains, (iii) distinguish human from animal blood, and (iv) differentiate between actual blood and potential false positive materials. This approach will provide immediate and lasting improvements to the theory and practice regarding serology as related to the field of criminal justice.

Claire K. Muro graduated magna cum laude from the University at Albany in 2012 with a B.S. in Forensic Chemistry and B.A. in Anthropology. After graduating she joined the Lednev Research Group at the University at Albany, where she is currently a Ph.D. candidate working on forensic body fluid analysis.



Claire's NIJ GRF STEM award, titled "Further Development of Raman Spectroscopy for Body Fluid Investigation: Method Advancement and Validation," concentrates on bridging the gap between research and application. It contains three objectives; (i) test Raman spectroscopy to determine the race and gender of body fluid donors, (ii) validate the current method with a portable Raman spectrometer that could be brought to a crime scene, and (iii) determine the limit of detection of the current method to establish its sensitivity. Collectively, these studies will help to advance and validate the current methodology developed by the Lednev Research Group, as well as move it one step closer to being ready for adoption by forensic laboratories.