ASEE Advisor: Christopher A. Kendziora, Ph.D.

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Dr. Chris Kendziora is a Research Physicist at the Naval Research Laboratory. He is an optical spectroscopist with over 20 years of experience in the fields of infrared and Raman spectroscopies. He specializes in the direction of infrared quantum cascade lasers for stand-off detection of trace explosives. His other research interests include infrared imaging systems, materials research including condensed matter, and the standoff detection of chemical agents and drugs of abuse.

Dr. Kendziora is co-inventor of the Photo-thermal Infrared Imaging Spectroscopy (PT-IRIS) technology for standoff detection of trace chemicals of interest based on quantum cascade laser illumination and infrared focal plane array sensing. Dr. Kendziora and NRL co-inventors received the 2014 NRL Edison Patent Award for this achievement. Dr. Kendziora currently leads the NRL team developing a cart-based platform for standoff detection of trace explosives.

Education:

B.A. 1988	Drew University	Physics
M.S. 1990	State University of New York at StonyBrook	Physics
Ph.D. 1993	State University of New York at StonyBrook	Physics

Experience:

1996-present	Research Scientist	United States Naval Research Laboratory
1993-1996	Postdoctoral Fellow	United States Naval Research Laboratory

Selected relevant publications:

1. C. A. Kendziora, R. Furstenberg, M. R. Papantonakis, V. K. Nguyen, J. M. Byers, and R. A. McGill, "Photothermal Methods for Laser-Based Detection of Explosives," in *Laser-Based Optical Detection of Explosives*, P. M. Pellegrino, E. L. Holthoff, and M. E. Farrell, eds. (CRC Press, 2015).
2. C. A. Kendziora, R. Furstenberg, M. Papantonakis, V. Nguyen, J. Byers, and R. A. McGill; "Detection of trace explosives on relevant substrates using a mobile platform for photothermal infrared imaging spectroscopy (PT-IRIS), Proc. of SPIE **9467**, 94672R (2015)
3. R. Furstenberg, C. A. Kendziora, M. R. Papantonakis, V. Nguyen, J. Byers, and R. A. McGill, "Trace explosives detection using photo-thermal infrared imaging spectroscopy (PT-IRIS): theory, modeling and detection algorithms", Proc. of SPIE **9455**, 94550I (2015).
4. C. A. Kendziora, R. Furstenberg, M. R. Papantonakis, V. K. Nguyen, J. M. Byers, and R. A. McGill "Infrared photothermal imaging of trace explosives on relevant substrates" Proceedings of SPIE 87090O (2013).
5. R. Furstenberg, C. A. Kendziora, J. Stepnowski, S. V. Stepnowski, M. Rake, M. R. Papantonakis, V. Nguyen, G. K. Hubler, and R. A. McGill; "Stand-off detection of trace explosives via resonant infrared photothermal imaging"; Appl. Phys. Lett. **93,** 224103 (2008)
6. Robert Furstenberg, Christopher Kendziora, Michael Papantonakis, Viet Nguyen and R. Andrew McGill. "The challenge of changing signatures in infrared stand-off detection of trace explosives", Proc. of SPIE Vol. 9073, 90730M (2014)
7. Viet Nguyen, Michael Papantonakis, Robert Furstenberg, Christopher Kendziora, and R. Andrew McGill, "Real World Particulate Explosives Test Coupons for Optical Detection Applications", Proc. of SPIE Vol. 8710, 87100T (2013)