

Olivier M. Putzeys, Ph.D., P.E.
Senior Engineer

Professional Profile

Dr. Olivier Putzeys is a Senior Engineer in Exponent's Thermal Sciences practice. He specializes in combustion, fire science and protection, heat transfer, fluid mechanics, and thermodynamics, and has a strong background in mechanical engineering. Dr. Putzeys' responsibilities include the investigation of fires and explosions in residential, commercial, and industrial settings, as well as the investigation of thermal failures of consumer products and commercial and industrial equipment. He has investigated the failures of household appliances, gas-fired equipment, automotive equipment, district heating systems, electrical equipment, consumer electronics, lighting systems, pumps and fire sprinklers. He has extensive experience with materials flammability testing, fire and explosion hazard assessments, skin burn hazard assessments, and theoretical analyses involving heat transfer and fluid mechanics. He has published and presented numerous research papers on smoldering and the transition to flaming. Dr. Putzeys has a strong background in experimental design and employs a wide variety in techniques in his work, including thermocouple and infrared thermography, high-speed imaging, Schlieren optical imaging, ultrasonic probing and imaging, gas chromatography, combustion flue gas analysis, and tracer gas techniques.

Prior to joining Exponent, Dr. Putzeys was a Graduate Research Assistant in the Combustion Processes Laboratory at the University of California at Berkeley, where his research focused on the spontaneous and piloted transitions from smoldering to flaming. As part of his graduate research, he collaborated with the NASA Glenn Research Center (Cleveland, OH). Dr. Putzeys also served as a Teaching Assistant for two undergraduate courses in Heat Transfer at Berkeley. Prior to his studies at Berkeley, Dr. Putzeys conducted research in the Biophysics Lab at the Massachusetts Institute of Technology and the Thermal Analysis of Materials Processing Laboratory at Tufts University.

Academic Credentials and Professional Honors

Ph.D., Mechanical Engineering, University of California, Berkeley, 2007
M.S., Mechanical Engineering, University of California, Berkeley, 2004
B.S., Mechanical Engineering, Bucknell University, 2002

NASA Graduate Student Research Program Fellowship, 2004–2007
The GE Fund Graduate Fellowship, 2002–2003

Licenses and Certifications

Registered Professional Mechanical Engineer, California, #34983

Fire Investigation 1A (Fire Cause and Origin Determination), Office of the California State Fire Marshall

OSHA 40-Hour Hazardous Waste Operations and Emergency Response (HAZWOPER) Certification (29 CFR 1910.120)

Languages

French

Publications

Dodd A, Lautenberger C, Fernandez-Pello C, Putzeys O. Examination of the spontaneous transition from smoldering to flaming: Comparison of simulations and experiments. Proceedings of Interflam 2010, Nottingham, UK, July 2010.

Putzeys O, Fernandez-Pello AC, Rein G, Urban D. The piloted transition to flaming in smoldering fire retarded and non-fire retarded polyurethane foam. *Fire Mater* 2008; 32(8):485–499.

Putzeys O. The spontaneous and piloted transitions from smoldering to flaming in polyurethane foam. Ph.D. Thesis, University of California, Berkeley, May 2007.

Putzeys O, Bar-Ilan A, Rein G, Fernandez-Pello AC, Urban D. The role of secondary char oxidation in the transition from smoldering to flaming. Proceedings, Combustion Institute 2007; 31(2):2669–2676.

Putzeys O, Fernandez-Pello AC, Urban D. Ignition of combustion modified polyurethane foam. *Flammability and Sensitivity of Materials in Oxygen-Enriched Atmospheres*, 11th Edition. Hirsch DB, et al. (eds), ASTM International, STP 1479, pp. 15–25, 2006.

Putzeys O, Fernandez-Pello AC, Urban D. Ignition of combustion modified polyurethane foam. *Journal of ASTM International* 2006; 3(3).

Bar-Ilan A, Putzeys O, Rein G, Fernandez-Pello AC, Urban D. Transition from forward smoldering to flaming in small polyurethane foam samples. Proceedings, Combustion Institute 2005; 30:2295–2302.

Presentations and Published Abstracts

Putzeys O, Fernandez-Pello AC, Urban D. Piloted ignition of smolder gases from combustion modified polyurethane foam. 5th US Meeting of the Combustion Institute, Paper H38, San Diego, CA, March 2007.

Putzeys O, Fernandez-Pello AC, Urban D. Ignition of combustion modified polyurethane foam. 11th International Symposium on the Flammability and Sensitivity of Materials in Oxygen-Enriched Atmospheres, Washington, D.C., October 2006.

Putzeys O, Rein G, Fernandez-Pello AC, Urban D. Piloted ignition to flaming in smoldering polyurethane foam. 44th AIAA Aerospace Sciences Meeting, Paper AIAA-2006-1131, Reno, NV, January 2006.

Titus R, Putzeys O, Bar-Ilan A, Fernandez-Pello AC, Urban D. The effects of environmental parameters on smoldering propagation in polyurethane foam samples. 44th AIAA Aerospace Science Meeting, Paper AIAA-2006-742, Reno, NV, January 2006.

Putzeys O, Fernandez-Pello AC, Urban D. Flaming ignition of combustion modified polyurethane foam. Western States Section of the Combustion Institute, 2005 Fall Meeting, Paper 05F-19, Stanford University, October 2005.

Putzeys O, Titus R, Bar-Ilan A, Fernandez-Pello AC, Urban D. Observations of forward smoldering and the transition to flaming in small polyurethane foam samples with ultrasound probing. Paper AIAA-2005-715, 43rd AIAA Aerospace Sciences Meeting, Reno, NV, January 2005.

Putzeys O, Bar-Ilan A, Rein G, Tsuji Y, Fernandez-Pello AC, Urban D. Transition from forward smoldering to flaming in small polyurethane foam samples. Western States Section of the Combustion Institute, 2004 Spring Meeting, Paper 04S-52, University of California, Davis, March 2004.

Technical Reports

Harmon J, Gopalakrishnan P, Putzeys O, Mikolajczak C. US FAA-Style Flammability Assessment of Lithium-Primary Battery Packs Packed with and Contained in Equipment (UN3091). Exponent Failure Analysis Associates, Inc., April 2010.

Prior Experience

Graduate Student Researcher, Combustion Processes Laboratory, University of California, Berkeley, 2003–2007