

Brian T. Fisher

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U.S. Naval Research Laboratory scientist/engineer and project management professional with 20+ years research experience focused primarily on combustion and diagnostics related to propulsion (internal combustion engines, gas turbines, rockets, ramjets/scramjets) and energetic materials applications. Laboratory experience includes operation of metal and optical engines, high-pressure vessels, laboratory-scale laminar and turbulent flame systems, larger-scale flame systems, high-pressure fuel-injection systems, lasers (pulsed/continuous, gas-phase, solid-state, high repetition rate), high-speed cameras, intensified cameras, and spectrometers (imaging/grating, holographic).

Education

2004	Ph.D., <i>Mechanical Engineering</i> , University of Florida	Gainesville, FL
2000	B.S., <i>Mechanical Engineering (Minor, Business Admin.)</i> , University of Florida	Gainesville, FL

Work Experience

2015- Present	Research Mechanical Engineer , <i>U.S. Naval Research Laboratory (Washington, DC)</i> Combustion and Reacting Transport Section (Code 6185), Chemistry Division (Code 6100) Project manager/research scientist for combustion and diagnostics projects focused on rocket/ramjet propulsion, particularly solid-fuel and metal powder combustion. Manages projects with combined research budget totaling over one million dollars.
2011- 2014	Assistant Professor , <i>The University of Alabama (Tuscaloosa, AL)</i> Department of Mechanical Engineering Tenure-track academic appointment with duties consisting of research, teaching, and service activities. Managed research projects focused on liquid fuel sprays and combustion in diesel and gas-turbine engines, supervised graduate students pursuing both Ph.D. and M.S. degrees, supervised undergraduate students conducting independent research projects, and taught undergraduate and graduate classes (Thermodynamics, Combustion, Internal Combustion Engines).
2008- 2011	Postdoctoral Associate , <i>Sandia National Laboratories (Livermore, CA)</i> Combustion Research Facility (CRF), Engine Combustion Department
2005- 2007	Postdoctoral Associate , <i>U.S. Naval Research Laboratory (Washington, DC)</i> Combustion Dynamics and Modeling Section (Code 6185), Chemistry Division (Code 6100) National Research Council (NRC) postdoctoral appointment
2000- 2004	Graduate Research Assistant , <i>University of Florida (Gainesville, FL)</i> Department of Mechanical and Aerospace Engineering Stephen C. O'Connell Presidential Fellowship

Selected Publications (32 total)

Soo, M. J.; Jacob, R. J.; Loparo, Z. E.; **Fisher, B. T.** "Combustion of suspensions of mixed aluminum and silicon carbide in the products of hydrocarbon flames." *Combust. Flame*, 252 (2023): 112689.

Geipel, C. M.; Bojko, B.T.; Pfützner, C. J.; **Fisher, B. T.**; Johnson, R. F. “Regression of solid polymer fuel strands in opposed-flow combustion with gaseous oxidizer.” *Proc. Combust. Inst.*, 39 (2023): 3389-3399.

Geipel, C. M.; Pfützner, C. J.; **Fisher, B. T.**; Johnson, R. F. “Active Control of Fuel Position in Opposed-Flow Strand Burner Experiments.” *Combust. Sci. Technol.* (2022), In press.

Fisher, B. T.; Tuttle, S. G.; Pfützner, C. J.; Kessler, D. A. “Method for measuring burn efficiency of spray flames that simulate scaled-down petroleum wellhead fires.” *Fuel*, 271 (2020): 117687.

Connell, Jr., T. L.; Yetter, R. A.; Risha, G. A.; Huba, Z. J.; Epshteyn, A.; **Fisher, B. T.** “Enhancement of solid fuel combustion in a hybrid rocket motor using amorphous Ti–Al–B nanopowder additives.” *J. Propul. Power*, 35 (2019): 662-665.

Weismiller, M. R.; Huba, Z. J.; Epshteyn, A.; **Fisher, B. T.** “Combustion of sonochemically-generated Ti–Al–B nanopowders in a premixed methane/air dust flame.” *Combust. Flame*, 191 (2018): 187-194.

Fisher, B. T.; Cowart, J. S.; Weismiller, M. R.; Huba, Z. J.; Epshteyn, A. “Effects of amorphous Ti–Al–B nanopowder additives on combustion in a single-cylinder diesel engine.” *J. Eng. Gas Turbines Power*, 139 (2017): 092802.

Weismiller, M. R.; Huba, Z. J.; Tuttle, S. G.; Epshteyn, A.; **Fisher, B. T.** “Combustion characteristics of high-energy Ti–Al–B nanopowders in a decane spray flame.” *Combust. Flame*, 176 (2016): 361-369.

Cheng, A. S.; **Fisher, B. T.**; Martin, G. C.; Mueller, C. J. “Effects of fuel volatility on early direct-injection, low-temperature combustion in an optical diesel engine.” *Energy Fuels*, 24 (2010): 1538-1551.

Carranza, J. E.; **Fisher, B. T.**; Yoder, G. D.; Hahn, D. W. “On-line analysis of ambient air aerosols using laser-induced breakdown spectroscopy.” *Spectrochim. Acta B*, 56 (2001): 851-864.

Selected Conference Papers/Presentations (48 total)

Geipel, C. M.; Bojko, B.T.; Pfützner, C. J.; **Fisher, B. T.**; Johnson, R. F. “Regression of solid polymer fuel strands in opposed-flow combustion with gaseous oxidizer.” *39th International Symposium on Combustion* (2022). Vancouver, BC, Canada.

Geipel, C. M.; Pfützner, C. J.; Finn, M. T.; Epshteyn, A.; **Fisher, B. T.** “Particle dynamics in composite solid fuel combustion.” *JANNAF 51st Combustion Meeting* (2022). Newport News, VA.

Bojko, B. T.; Johnson, R. F.; Geipel, C. M.; **Fisher, B. T.** “Counterflow diffusion flame simulations of hydroxyl-terminated polybutadiene (HTPB) compared to experimental results.” *JANNAF 51st Combustion Meeting* (2022). Newport News, VA.

Finn, M. T.; Geipel, C. M.; Pfützner, C. J.; Chaloux, B. L.; **Fisher, B. T.**, Epshteyn, A. “Modification of sonochemically-generated high-energy Ti–Al–B solid fuel powders with the addition of Fe.” *JANNAF 51st Combustion Meeting* (2022). Newport News, VA.

Jacob, R. J.; Finn, M. T.; Epshteyn, A.; **Fisher, B. T.** “Combustion of HTPB enhanced by reactive mixed-metal nanopowders.” *JANNAF 50th Combustion Meeting* (2020). Virtual/online.

Jacob, R. J.; Finn, M. T.; Soo, M. J.; Mellinger, M. H.; Epshteyn, A.; **Fisher, B. T.** “Combustion characteristics of mixed-metal dust flames.” *JANNAF 50th Combustion Meeting* (2020). Virtual/online.

Finn, M. T.; Jacob, R. J.; **Fisher, B. T.**; Epshteyn, A. Optimization of Ti–Al–B amorphous powders as fuels for air-breathing applications.” *66th JANNAF Propulsion Meeting* (2019). Dayton, OH.

Connell, Jr., T. L.; Huba, Z. J.; Epshteyn, A.; Yetter, R. A.; **Fisher, B. T.** “Enhancement of HTPB combustion in a hybrid rocket motor using amorphous Ti–Al–B nanopowder additives.” *10th U.S. National Combustion Meeting* (2017). College Park, MD.