

RICHARD J. ROBY, P.E., PH.D.

SELECTED PUBLICATIONS

- Ma, T., S. M. Olenick, M.S. Klassen, R.J. Roby and J. Torero, "**Burning Rate of Liquid Fuel on Carpet (Porous Media)**", submitted to the IAFSS 7th International Symposium of Fire Safety Science (2002).
- Holton, M.M., S.M. Olenick, M.S. Klassen, and R.J. Roby, "**A Study of the Effectiveness of Passive Infrared Burglar Alarms to Detect Fires and Smoke**," presented at NFPA's 6th Fire Suppression & Detection Research Application Symposium, **Tampa, FL**, January 2002.
- D'Souza, V.T., J.A. Sutula, S.M. Olenick, W. Zhang, and R.J. Roby, "**Use of the Fire Dynamics Simulator to Predict Smoke Detector Activation**," to be presented at the Fall Technical Meeting of the Eastern States Section of the Combustion Institute, December 2001.
- Zhang, W., A.J. Hamer, M.S. Klassen, D.J. Carpenter, and R.J. Roby, "**Verification of the Turbulence Statistics for Fire Dynamic Simulator in a Room Fire**," presented at 3rd Technical Symposium on Computer Applications in Fire Protection Engineering, **Baltimore, MD**, September 2001.
- Olenick, S.M., M.S. Klassen, and R.J. Roby, "**Validation Study of FDS for a High-Rack Storage Fire Involving Pool Chemicals**," presented at 3rd Technical Symposium on Computer Applications in Fire Protection Engineering, **Baltimore, MD**, September 2001.
- Sutula, J.A., D.J. Carpenter, and R.J. Roby, "**Use of the FDS Model to Analyze Two Competing Scenarios in an Alleged Arson Case**," presented at 3rd Technical Symposium on Computer Applications in Fire Protection Engineering, **Baltimore, MD**, September 2001.
- Zhang, W., A.J. Hamer, M.S. Klassen, D.J. Carpenter, and R.J. Roby, "**Turbulence Statistics in a Fire Room Model By Large Eddy Simulation**," presented at 2nd Joint Meeting of the U.S. Sections of the Combustion Institute, **Oakland, CA**, March 2001.
- Worrell, C.L., R.J. Roby, L. Streit, and J.L. Torero, "**Enhanced Deposition, Acoustic Agglomeration, and Chladni Figures in Smoke Detectors**," presented at 5th NFPA Fire Suppression and Detection Research Application Symposium, February 2001, **Orlando, FL**.
- Gottuk, D.T., M.J. Peatross, R.J. Roby, and C.L. Beyler, "**Advanced Fire Detection Using Multi-Signature Alarm Algorithms**," presented at the 11th International Conference on Automatic Fire Detection - AUBE'99, March 16-18, 1999, **Duisburg, Germany** (also presented at the NFPA Research Foundation Meeting, Feb. 24-26, 1999, **Orlando, FL**).
- Lattimer, B.Y., U. Vandsburger, and R.J. Roby, "**Carbon Monoxide Levels in Structure Fires: Effects of Wood in the Upper Layer of a Post-Flashover Compartment Fire**," *Fire Technology*, Vol. 34, No. 4, 1998.
- Roby, R.J., J.E. Reaney, and E.L. Johnsson, "**Detection of Temperature and Equivalence Ratio in Turbulent Premixed Flames using Chemiluminescence**," presented at ASME International Joint Power Generation Conference, **Baltimore, MD**, August 23-26, 1998.

- Hamer, A.J., Roby, R.J., and Klassen, M.S., "**Comparison of Reduced Chemical Kinetics Mechanisms for Pollutant Emissions Predictions in Gas Turbines**," presented at the ASME International Joint Power Generation Conference, **Baltimore, MD**, August 23-26, 1998.
- Nicol, D. G., Malte, P. C., Hamer, A. J., Roby, R. J. and Steele, R. C., "**Development of a Five-Step Methane Oxidation-NO Formation Mechanism for Lean-Premixed Gas Turbine Combustion**," Paper No. 98-GT-185, ASME/IGTI Turbo Expo, **Stockholm, Sweden**, June 1998.
- Hamer, A.J. and Roby, R.J., "**CFD Modeling of a Gas Turbine Combustor Using Reduced Chemical Kinetic Mechanisms**", Paper No. 97-3242, 33rd AIAA/ASME/SAE/ASEE Joint Propulsion Conference, **Seattle, WA**, July, 1997.
- Lattimer, B.Y., U. Vandsburger, and R.J. Roby, "**Developing Scale Parameters for Estimating Carbon Monoxide in Structure Fires**," 2nd International Symposium on Scale Modeling, University of Kentucky, **Lexington, Kentucky**, June 23-27, 1997.
- Lattimer, B.Y., U. Vandsburger, and R.J. Roby, "**The Transport of Carbon Monoxide from a Burning Compartment Located on the Side of a Hallway**," 26th Symposium (International) on Combustion, The Combustion Institute, **Pittsburgh, PA**, 1997.
- Hunderup, J.W., and R.J. Roby, "**An Experimental Investigation of the Conversion of NO to NO₂ at High Pressure**," Paper No. 95-GT-306, presented at the IGTI meeting of ASME, **Houston, TX**, June 5-8, 1995 (accepted for publication in ASME Journal of Engineering for Gas Turbines and Power).
- Blevins, L.G., and R.J. Roby, "**An Experimental Study of NO_x Reduction in Laminar Diffusion Flames by Addition of High Levels of Steam**," Paper No. 95-GT-327, presented at the IGTI meeting of ASME, **Houston, TX**, June 5-8, 1995.
- Gottuk, D.T., and Roby, R.J., "**Effect of Combustion Conditions on Species Production**," Section 2/Chapter 7, The SFPE Handbook of Fire Protection Engineering, P.J. DiNenno (ed.), Second Edition, National Fire Protection Association, **Quincy, MA**, June 1995.
- Roby, R.J., A.J. Hamer, E.L. Johnsson, S.A. Tilstra, and T.J. Burt, "**Improved Method for Flame Detection in Combustion Turbines**," ASME Journal of Engineering for Gas Turbines and Power, 117 (2), 1995.
- Gottuk, D.T., R.J. Roby, and C.L. Beyler, "**The Role of Temperature on Carbon Monoxide Production in Compartment Fires**," Fire Safety Journal, 24 (4), 1995.
- Lattimer, B.Y., D.S. Ewens, U. Vandsburger, and R.J. Roby, "**Transport and Oxidation of Compartment Fire Exhaust Gases in an Adjacent Corridor**," Journal of Fire Protection Engineering, 6 (4), 1994, pp. 163-181.
- Becker, W.J., R.J. Roby, W.F. O'Brien and G.K. Bensing, "**Dynamic Turbine Blade Temperature Measurement**," Journal of Propulsion and Power, 10 (1), 1994, also AIAA Paper #89-2689, presented at the AIAA/SAE/ASME/ASEE 25th Joint Propulsion Conference, **Monterey, CA**, July 1989.
- Foss, D.T., R.J. Roby, and W.F. O'Brien, "**Development of a Dual-frequency Microwave Burn-rate Measurement for Solid Rocket Propellant**," Journal of Propulsion and Power, 9 (4), 1993, pp. 497-498.

- Ewens, D.S., U. Vandsburger, and R.J. Roby, "**Oxidation of Exhaust Gases from a Burning Compartment in a Remote Location**," Paper No. 69, presented at the Eastern States Section Meeting of The Combustion Institute, **Princeton, NJ**, October 1993.
- Aftel, R., U. Vandsburger, and R.J. Roby, "**Soot Formation in Dual-mode Counterflow Flames**," Paper No. 61, presented at the Eastern States Section Meeting of The Combustion Institute, **Princeton, NJ**, October 1993.
- Blevins, L.G., and R.J. Roby, "**Effects of High Levels of Steam Addition on NO_x Reduction in Laminar Opposed Flow Diffusion Flames**," WSS/CI Paper No. 92-16, presented at the Western States Section Meeting of The Combustion Institute, **Corvallis, OR**, March 1992.
- Gottuk, D.T., Roby, R.J. and Beyler, C.L., "**A Study of Carbon Monoxide and Smoke Yields from Compartment Fires**," Twenty-Fourth Symposium (International) on Combustion, The Combustion Institute, **Pittsburgh, PA.**, 1993.
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- Roby, R.J., "**Review of Principles of Fire Protection Chemistry**," Fire Technology, May 1990.
- Tobin, K.W., M.R. Cates, D.L. Beshears, J.D. Muhs, G.J. Capps, D.B. Smith, W.D. Turley, W. Lewis, B.W. Noel, H.M. Borella, W.F. O'Brien, R.J. Roby and T.T. Anderson, "**Engine Testing of Thermographic Phosphors**," Oak Ridge National Laboratory Report #ORNL/ATD-31, 1990.
- Wirth, D.A. and R.J. Roby, "**Soot Formation in Staged Combustion**," paper no. 61, presented at the Eastern States Section Meeting of the Combustion Institute, **Albany, NY**, October 1989.
- Foss, D.T., R.J. Roby and W.F. O'Brien, "**A Dual-Frequency Microwave Burn-Rate Measurement System for Solid Rocket Motors**," AIAA Paper #89-2530, presented at the AIAA/SAE/ASME/ASEE 25th Joint Propulsion Conference, **Monterey, CA**, July 1989.
- Stouffer, S.D., R.J. Roby, and W.F. O'Brien, "**Improved Plasma Torch for Ignition and Flame Holding in Supersonic Combustion**," AIAA Paper #89-2945, presented at the AIAA/SAE/ASME/ASEE 25th Joint Propulsion Conference, **Monterey, CA**, July 1989.
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- Freeman, L.E., G.K. Chui, D. Crowl and R.J. Roby, "**A Comparative Study of the Effects of Fuel Properties of Non-Petroleum Fuels on Diesel Engine Combustion and Emissions**," Transactions SAE, Vol 93, Paper #841334, pp 35-50 of SP-587, also presented at the Fall Meeting of the Fuels and Lubricants Section of the Society of Automotive Engineers, **Baltimore, Maryland**, October 1984.
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