

ISSN 1044-5110
ATSPE2

ATOMIZATION AND SPRAYS

Journal of the International Institutes for Liquid Atomization and Spray Systems

Volume 15

2005

ATOMIZATION AND SPRAYS

Journal of the International Institutes for Liquid Atomization and Spray Systems

Editor

NORMAN CHIGIER

Department of Mechanical Engineering
Carnegie-Mellon University
Pittsburgh, PA 15213-3890
Phone: (412) 268-2498
Fax: (412) 268-3348
e-mail: chigier@andrew.cmu.edu

Assistant to the Editor

Kathleen McClintock

Phone: (412) 268-3050
Fax: (412) 268-3348
e-mail: km63@andrew.cmu.edu

Associate Editors

Joachim Domnick

University of Applied Sciences Esslingen
Kanalstrasse 33
73728 Esslingen, Germany
Phone: +49 397 3407
Fax: +49 397 3502
e-mail: joachim.domnick@fht-esslingen.de

Sang Yong Lee

Department of Mechanical Engineering
KAIST
Science Town
Daejeon 305-701, Republic of Korea
Phone: 82-42-869-3026
Fax: 82-42-869-8207
e-mail: sangyonglee@kaist.ac.kr

Editorial Board

Masataka Arai, Gunma University, Gunma, Japan
Nasser Ashgriz, University of Toronto, Ontario,
Canada

C. T. Avedisian, Cornell University, NY

William Bachalo, Aerometrics, CA

W. Balachandran, University of Uxbridge, UK

Josette Bellan, Jet Propulsion Lab, CA

Antonio Cavaliere, University of Napoli, Italy

Paul Chiu, NCKU, Tainan, Taiwan

Joachim Domnick, University of Applied Sciences
Esslingen, Germany

James Drallmeier, University of Missouri, Rolla, MI

Christophe Dumouchel, Université et Insa de Rouen,
Rouen, France

Chris Edwards, Stanford University, CA

Ken Giles, University of CA, Davis, CA

Steve Heister, Purdue University, W. Lafayette, IN

Andrew Hewitt, University of Queensland,
Queensland, Australia

Hiroyuki Hiroyasu, Kinki University, Higashi, Japan

Chia-fon Lee, University of Illinois, Urbana, IL

Sang Yong Lee, KAIST, Daejeon, Republic of
Korea

S. P. Lin, Clarkson University, Potsdam, NY

V. G. McDonell, University of CA, Irvine, CA

Michael Micci, Penn State University,
University Park, PA

Cary Presser, NIST, Gaithersburg, MD

Rolf Reitz, University of Wisconsin, Madison, WI

David Schmidt, University of Massachusetts,
Amherst, MA

William Sirignano, University of California,
Irvine, CA

Shankar Subramaniam, Iowa State University,
Ames, IA

Douglas Talley, AFRL/PRSA, Edwards AFB, CA

Cam Tropea, Technical University of
Darmstadt, Germany

CONTENTS OF VOLUME 15

NUMBER 1

- 1 Numerical Simulation of Diesel Spray Evaporation Exploiting the "Stabilized Cool Flame" Phenomenon
M. A. Founti & D. I. Kolaitis
- 19 A Study of Liquid Metal Atomization Using Close-Coupled Nozzles, Part 1: Gas Dynamic Behavior
S. P. Mates & G. S. Settles
- 41 A Study of Liquid Metal Atomization Using Close-Coupled Nozzles, Part 2: Atomization Behavior
S. P. Mates & G. S. Settles
- 61 Criterion between Permanent Coalescence and Separation for Head-On Binary Droplet Collision
Yoshio Morozumi, Hirotaka Ishizuka, & Jun Fukai
- 81 Effect of Oxidation on the Breakup and Monosized Droplet Generation of the Molten Metal Jet
Wei-Hsiang Lai & Chia-Chin Chen
- 103 Experimental Investigation of the Impact of an (Apparent) Yield-Stress Material
S. Nigen

NUMBER 2

- 119 On Sampling from Prescribed Droplet PDFs Using Computational Parcels
John C. Hewson & Sam S. Yoon
- 133 Effect of Fan Speed and Electrostatic Charge on Deposition of Orchard Canopy Sprays
G. N. Laryea & S. Y. No
- 145 Effervescent Atomization of Liquids
Marc Lörcher, Florian Schmidt, & Dieter Mewes
- 169 Atomization of Viscous Melts
H. Lohner, C. Czisch, P. Schreckenberg, U. Fritsching, & K. Bauckhage
- 181 Growth of Longitudinal Waves in Plane Liquid Sheets Having Lateral Wave Modes When Exposed to Two Gas Streams of Unequal Velocities
T. John Tharakan & K. Ramamurthi
- 201 Experimental Characterization of an Intermittent Gasoline Spray Impinging Under Cross-Flow Conditions
M. R. O. Panão & A. L. N. Moreira
- 223 Liquid Jet Breakup and Atomization by Annular Swirling Gas Jet
Arnaud Dunand, Jean-Louis Carreau, & Francis Roger

NUMBER 3

- 249 Two-Fluid Modeling of Spray Penetration and Dispersion Under Diesel Engine Conditions
Venkatraman Iyer & John Abraham
- 271 Properties of Nonturbulent Round Liquid Jets in Uniform Gaseous Cross Flows
C. Aalburg, B. van Leer, G. M. Faeth, & K. A. Sallam
- 295 Modeling the Initial Droplet Size Distribution in Sprays Based on the Maximization of Entropy Generation
Xianguo Li, Meishen Li, & Huijuan Fu
- 323 Experimental Investigation of the Evaporation of a Monodisperse Droplet Stream for Variable Air Velocity
Björn Rossow, Sascha Krüger, & Gerd Grünefeld
- 341 Characterization of Fire Sprinkler Sprays Using Particle Image Velocimetry
David T. Sheppard & Richard M. Lueptow

NUMBER 4

- 363 Drag on Ellipsoids at Finite Reynolds Numbers
Brian J. O'Donnell & Brian T. Helenbrook
- 377 Anomalous Group Combustion Phenomena in DI Diesel Engines
Hsin-Luen Tsai & Huei-Huang Chiu
- 401 Aerosol Clustering in Oscillating Flows: Mathematical Analysis
David Katoshevski, Zusia Dodin, & Gennady Ziskind
- 413 Molecular Dynamics Calculations of Near-Critical Liquid Oxygen Droplet Surface Tension
M. M. Micci, S. J. Lee, B. Vieille, C. Chauveau, & I. Gokalp
- 423 Suppression of Aerosol Generation during Spraying and Deposition of Consumer Products
D. K. Giles, D. Downey, H. Scher, D. Winetzky, T. Becker, & J. Hogue
- 439 Design of Spray Absorbers for $\text{LiNO}_3\text{-NH}_3$ Absorption Refrigeration Systems
M. Venegas, M. Izquierdo, P. Rodríguez, & J. I. Nogueira
- 457 Effects of Fluid Properties on the Characteristics of Impinging-Jet Sprays
Wei-Hsiang Lai, Tzu-Hong Huang, Tsung-Leo Jiang, & Wennon Huang
- 469 Droplet Formation from a Thin Hollow Liquid Jet with a Core Air Flow
Chul Jin Choi & Sang Yong Lee

NUMBER 5

- 469 Droplet Formation from a Thin Hollow Liquid Jet with a Core Air Flow
Chul Jin Choi & Sang Yong Lee
- 489 Experimental Characterization of Internal Nozzle Flow and Diesel Spray Behavior. Part I: Nonevaporative Conditions
J. M. Desantes, R. Payri, J. M. Pastor, & J. Gimeno
- 517 Experimental Characterization of Internal Nozzle Flow and Diesel Spray Behavior. Part II: Evaporative Conditions
J. M. Desantes, J. V. Pastor, R. Payri, & J. M. Pastor
- 545 Influence of Inert Sprays on Extinction of Premixed Flames Propagating in a Duct with Varying Cross-Sectional Area
Chih-Hsin Tsai & Ta-Hui Lin
- 567 Droplet Characterization of a Novel Orifice Spray Nozzle
Edward H. Owens, Weiping Liu, George H. Smith, & Mark T. Leonard
- 585 Fundamental Considerations for Coal Slurry Atomization
John P. Doohar

NUMBER 6

- 603 Electrostatic Effects on Agricultural Air-Atomized Sprays and Deposition. Part I: An Experimental Study
M. R. Jahannama, A. P. Watkins, & A. J. Yule
- 629 Electrostatic Effects on Agricultural Air-Atomized Sprays and Deposition. Part II: A Computational Study
M. R. Jahannama, A. P. Watkins, & A. J. Yule
- 661 Control of Spray Formation by Vibrational Excitation of Flat-Fan and Conical Liquid Sheets
Günter Brenn, Zeljko Prebeg, Dirk Rensink, & Alexander L. Yarin
- 687 Optical Patterning of a Multi-orifice Spray Nozzle
Jongmook Lim & Yudaya Sivathanu
- 699 Single-Drop Empirical Models for Spray Impact on Solid Walls: A Review
G. E. Cossali, M. Marengo, & M. Santini

Following page 736:

Title page to Volume 15
Contents of Volume 15
Author Index to Volume 15
Subject Index to Volume 15

