

TABLE OF CONTENTS FOR VOLUME 24

ATOMIZATION AND SPRAYS

PAGE RANGE OF ISSUES

Issue 1, 1-96; **Issue 2**, 97-192; **Issue 3**, 193-280; **Issue 4**, 281-373;
Issue 5, 375-465; **Issue 6**, 467-554; **Issue 7**, 555-650; **Issue 8**, 651-746;
Issue 9, 747-840; **Issue 10**, 841-935; **Issue 11**, 937-1033; **Issue 12**, 1035-1135

Number 1

Macroscopic Spray Characteristics of a Porous Injector	1
<i>D. Kim, I. Lee, & J. Koo</i>	
Theoretical Analysis of Surface Waves on a Round Liquid Jet in a Gaseous Crossflow	23
<i>S. L. Wang, Y. Huang, & Z. L. Liu</i>	
Development of a New Spray/Wall Interaction Model for Diesel Spray under PCCI-Engine Relevant Conditions	41
<i>Y. Zhang, M. Jia, H. Liu, M. Xie, T. Wang, & L. Zhou</i>	
Effect of the Liquid Injection Angle on the Atomization of Liquid Jets in Subsonic Crossflows	81
<i>H. Almeida, J. M. M. Sousa, & M. Costa</i>	

Number 2

Development of a Mathematical Model and 3D Numerical Simulation of the Internal Flow in a Conical Swirl Atomizer	97
<i>J. R. R. Rivas, A. P. Pimenta, & G. A. R. Rivas</i>	
Spray Droplet Characterization inside a Glass Column through Dense Wall Flow	115
<i>Y. S. Tamhankar, J. R. Whiteley, M. R. Resetarits, & C. P. Aichele</i>	
Response of Liquid Jet to Modulated Crossflow	129
<i>J. Song, Ch. Ramasubramanian, J. G. Lee</i>	
Linear Stability Analysis of an Electrified Viscoelastic Liquid Sheet in a Viscous Gas Medium	155
<i>R.-z. Duan, Z.-y. Chen, & L. Li</i>	
Comparison of Drop Size Data from Ground and Aerial Application Nozzles at Three Testing Laboratories	181
<i>B. K. Fritz, W. C. Hoffmann, G. R. Kruger, R. S. Henry, A. Hewitt, & Z. Czaczuk</i>	

Number 3

- Investigation of Droplets Entrainment and Deposition in Annular Flow using LIF Technique** 193
S. V. Alekseenko, V. Cherdantsev, D. M. Markovich, & A. V. Rabusov
- Laser-Diffraction Measurement of Nonspherical Drop Sprays** 223
C. Dumouchel & J.-B. Blaisot
- Time-Resolved X-Ray Radiography of Sprays from Engine Combustion Network Spray A Diesel Injectors** 251
A. L. Kastengren, F. Z. Tilocco, D. Duke, C. F. Powell, X. Zhang, & Seoksu Moon
- Prediction of Pressure Drop through Baffle Injector** 273
K. Ahn & H.-S. Choi

Number 4

- Large Eddy Simulation of Single Droplet and Liquid Jet Primary Breakup Using a Coupled Level Set/Volume of Fluid Method** 281
F. Xiao, M. Dianat, & J. J. McGuirk
- Injection of Water-in-Oil Emulsion Jets into a Subsonic Crossflow: an Experimental Study** 303
C. D. Bolszo, V. G. McDonell, G. A. Gomez, & G. S. Samuelsen
- Drop Deformation and Acceleration: the Effects of Inertia in Fragmentation** 349
A. G. Girin
- A Fluorescent Imaging Technique for Quantifying Spray Deposits on Plant Leaves** 367
D. E. Martin

Number 5

- High-Pressure-Driven Twin-Jet Sprays and Their Properties** 375
Y. Han, F. Durst, & M. Zeilmann
- Modeling and Simulation of Water and PVP/Water Evaporating Spray Flows Using the Direct Quadrature Method of Moments** 403
S. R. Gopireddy, R. M. Humza, E. Wimmer, G. Brenn, & E. Gutheil
- On the Primary Atomization of Non-Newtonian Impinging Jets: Volume I Experimental Investigation** 431
J. Mallory & P. Sojka

Number 6

- The Effect of Flash Boiling on the Atomization Performance of Gasoline Direct Injection Multistream Injectors** 467
M. Mojtabi, G. Wigley, & J. Hélie
- Influence of Atomization and Spray Parameters on the Flame Spray Process for Nanoparticle Production** 495
D. Noriler, C. D. Rosebrock, L. Mädler, H. F. Meier, & U. Fritsching
- On the Primary Atomization of Non-Newtonian Impinging Jets: Volume II Linear Stability Theory** 525
J. Mallory & P. Sojka

Number 7

- Absolute and Convective Instability of a Confined Swirling Annular Liquid Layer** 555
Q.-f. Fu, L.-j. Yang, M.-x. Tong, & C. Wang
- Effect of Fuel Properties on Spray Characteristics of Alternative Jet Fuels Using Global Sizing Velocimetry** 575
K. Kannaiyan & R. Sadr
- Experimental Study on Flow Fields of Fuel Droplets and Ambient Gas of Diesel Spray-Free Spray and Flat-Wall Impinging Spray** 599
J. Zhu, K. Nishida, & T. Uemura
- Characteristics of Adhesion Diesel Fuel on an Impingement Disk Wall. Part 3: Ambient Pressure Effect** 625
M. Z. Akop, Y. Zama, T. Furuhashi, & M. Arai

Number 8

- Characteristics of Adhesion Diesel Fuel on an Impingement Disk Wall Part 2: Droplet Weber Number and Adhered Fuel Mass** 651
M. Z. Akop, Y. Zama, T. Furuhashi, & M. Arai
- Effect of Geometric Variations on the Spray Dynamics of an Annular Fuel Sheet in a Hybrid Atomizer** 673
S. Chatterjee, M. Das, A. Mukhopadhyay, & S. Sen
- Mechanisms, Experiment, and Theory of Liquid Sheet Breakup and Drop Size From Agricultural Nozzles** 695
A. Altieri, S. A. Cryer, & L. Acharya
- Experimental Study on Velocity Distribution of Postimpingement Diesel Spray on a Wall. Part 1: Effect of Impingement Angle on Flow Pattern** 723
Y. Zama, K. Sugawara, M. Z. Akop, T. Furuhashi, & M. Arai

Number 9

- Measuring Droplet Size of Agricultural Spray Nozzles – Measurement Distance and Airspeed Effects** 747
B. K. Fritz, W. C. Hoffmann, W. E. Bagley, G. R. Kruger, Z. Czaczyk, & R. S. Henry
- Mathematical Modeling and Experiment on Propulsion of the Multijet Bit** 761
G. Bi, G. Li, D. Ma, Z. Shen, Z. Huang, J. Li, & R. Yang
- Evaluation of Turbulence-Chemistry Interaction under Diesel Engine Conditions with Multi-Flamelet RIF Model** 779
P. Kundu, Y. Pei, M. Wang, R. Mandhapaty, & S. Som
- Drop-Impinging Behavior on Structured Surfaces – A Short Review** 801
S. Y. Lee & W. S. Kim
- Spray of Power-Law Fluid from a Swirl Injector with Nontangential Inlet Channels** 827
Q.-fei Fu & K.-da Cui

Number 10

- Experimental Investigations on a Piezo-Activated Hollow Cone Injector – Part I: Measurement of Needle Lift and Its Influence on Spray Morphology** 841
A. Schmid, B. Schneider, K. Boulouchos, & G. Wigley
- Experimental Investigations on a Piezo-Activated Hollow Cone Injector – Part II: The Influence of Needle Lift on Droplet Size Distributions and Vortex Formation** 859
A. Schmid, B. Schneider, K. Boulouchos, & G. Wigley
- Effects of Single and Double Streams of Droplet Impingements on Surface Cooling** 875
T. Zhang, H.-M. Tsai, & J. L. Alvarado
- Effects of Liquid and Surface Characteristics on Oscillation behavior of Droplets upon Impact** 895
D. Banks, C. Ajawara, R. Sanchez, H. Surti, & G. Aguilar
- Bubble Dynamics Model for Predicting the Growth and Collapse of Cavitation Bubbles in Diesel Injector** 915
B. Bicer & A. Sou

Number 11

- Experimental Study of the Laws of Interaction between Small Particles and Large Drops** 937
A. A. Shraiber, V. V. Dubrovsky, & A. M. Podvysotsky
- The Effect of Viscosity and Convection on the Stability of Annular Liquid Sheets** 949
M. V. Panchagnula, P. E. Sojka, & A. K. Bajaj

A Model of an Atomizing Drop	977
<i>A. G. Girin</i>	
Approximate Relations of the Evaporating Droplet Ballistics	999
<i>A. G. Girin</i>	
A Numerical Method for Analysis of Spray behavior with Design of Experiment	1017
<i>J. Yeom & H. Ha</i>	

Number 12

Novel Aerosol Inert Design Utilizing Inert Compressed Gas	1035
<i>M. L. Burby, G. G. Nasr, G. Hawthorne, & N. Asmuin</i>	
Atomization Characteristics of an Annular Liquid Sheet with Inner and Outer Gas Flows	1065
<i>N. Leboucher, F. Roger, & J.-L. Carreau</i>	
A Study of Droplet Collision Modelling for Spray Formation and Mixing with a Two-Row Group-Hole Injection Nozzle for Diesel Engines	1089
<i>P. G. Aleiferis, M. Ashrafi-Nik, N. Ladommatos, G. Dober, & K. Karimi</i>	
Index to Volume 24	1137

AUTHOR INDEX – Volume 24

Atomization and Sprays

PAGE RANGE OF ISSUES

Issue 1, 1-96; **Issue 2**, 97-192; **Issue 3**, 193-280; **Issue 4**, 281-373;
Issue 5, 375-465; **Issue 6**, 467-554; **Issue 7**, 555-650; **Issue 8**, 651-746;
Issue 9, 747-840; **Issue 10**, 841-935; **Issue 11**, 937-1033; **Issue 12**, 1035-1135

Acharya, L., 695	Dianat, M., 281	Ladommatos, N., 1089
Aguilar, G., 895	Dober, G., 1089	Leboucher, N., 1065
Ahn, K., 273	Duan, R.-z., 155	Lee, I., 1
Aichele, C.P.115	Dubrovsky, V.V., 937	Lee, J.G., 129
Ajawara, C., 895	Duke, D., 251	Lee, S.Y., 801
Akop, M.Z., 625,651,723	Dumouchel, C., 223	Li, G., 761
Aleiferis, P.G., 1089	Durst, F., 375	Li, J., 761
Alekseenko, S.V., 193	Fritsching, U., 495	Li, L., 155
Almeida, H., 81	Fritz, B.K., 181,747	Liu, H., 41
Altieri, A., 695	Fu, Q.-f., 555,827	Liu, Z.L., 23
Alvarado, J.L., 875	Furuhata, T., 625,651,723	Ma, D., 761
Arai, M., 625,651,723	Girin, A.G.,349, 977,999	Mädler, L., 495
Ashrafi-Nik, M., 1089	Gomez, G.A., 303	Mallory, J., 431,525
Asmuin, N., 1035	Gopireddy, S.R., 403	Mandhapati, R., 779
Bagley, W.E., 747	Gutheil, E.,403	Markovich, D.M., 193
Bajaj, A.K., 949	Ha, H., 1017	Martin, D.E., 367
Banks, D., 895	Han, Y., 375	McDonell, V.G., 303
Bi, G., 761	Hawthorne, G., 1035	McGuirk, J.J., 281
Bicer, B., 915	Hélie, J., 467	Meier, H.F., 495
Blaisot, J.-B., 223	Henry, R.S., 181,747	Mojtabi, M., 467
Bolszo, C.D., 303	Hewitt, A., 181	Moon, S., 251
Boulouchos, K., 841,859	Hoffmann, W.C., 181,747	Mukhopadhyay, A., 673
Brenn, G., 403	Huang, Y., 23	Nasr, G.G., 1035
Burby, M.L., 1035	Huang, Z., 761	Nishida, K., 599
Carreau, J.-L., 1065	Humza, R.M., 403	Noriler, D., 495
Chatterjee, S., 673	Jia, M., 41	Panchagnula, M.V., 949
Chen, Z.-y., 155	Kannaiyan, K., 575	Pei, Y., 779
Cherdantsev, V., 193	Karimi, K., 1089	Pimenta, A.P., 97
Choi, H.-S., 273	Kastengren, A.L., 251	Podvysotsky, A.M., 937
Costa, M., 81	Kim, D., 1	Powell, C.F., 251
Cryer, S.A., 695	Kim, W.S., 801	Rabusov, A.V., 193
Cui, K.-da, 827	Koo, J. 1	Ramasubramanian, Ch., 129
Czacyk, Z., 181,747	Kruger, G.R., 181,747	Resetarits, M.R., 115
Das, M., 673	Kundu, P., 779	Rivas, G.A.R., 97

Rivas, J.R.R., 97
Roger, F., 1065
Rosebrock, C.D., 495
Sadr, R., 575
Samuelsen, G.S., 303
Sanchez, R., 895
Schmid, A., 841,859
Schneider, B., 841,859
Sen, S., 673
Shen, Z., 761
Shraiber, A.A., 937
Sojka, P., 431,525,949
Som, S., 779
Song, J., 129
Sou, A., 915
Sousa, J.M.M., 81
Sugawara, K., 723
Surti, H., 895
Tamhankar, Y.S., 115
Tilocco, F.Z., 251
Tong, M.-x., 555
Tsai, H.-M., 875
Uemura, T., 599
Wang, C., 555
Wang, M., 779
Wang, S.L., 23
Wang, T., 41
Whiteley, J.R., 115
Wigley, G., 467,841,859
Wimmer, E., 403
Xiao, F., 281
Xie, M., 41
Yang, L.-j., 555
Yang, R., 761
Yeom, J., 1017
Zama, Y., 625,651,723
Zeilmann, M., 375
Zhang, Y., 41
Zhang, T., 875
Zhang, X., 251
Zhou, L., 41
Zhu, J., 599

SUBJECT INDEX – Volume 24

Atomization and Sprays

PAGE RANGE OF ISSUES

Issue 1, 1-96; **Issue 2**, 97-192; **Issue 3**, 193-280; **Issue 4**, 281-373;
Issue 5, 375-465; **Issue 6**, 467-554; **Issue 7**, 555-650; **Issue 8**, 651-746;
Issue 9, 747-840; **Issue 10**, 841-935; **Issue 11**, 937-1033; **Issue 12**, 1035-1135

- Abramovich's theory, 97
- absolute instability, 555
- adhered fuel, 625, 651
- aerosol, 1035
- agricultural sprays, 181, 747
- agriculture, 695
- air crossflow, 81
- alternate jet fuels, 575
- ambient gas flow, 599
- ambient pressure, 625
- angled injection, 81
- annular flow, 193
- application technology, 181, 747
- approximate solution, 999
- atomization, 673
- baffle injector, 273
- ballistic similarity criterion, 999
- breakaway droplet mechanics, 977
- breakup length, 1, 673, 949
- breakup mode necessary conditions, 349
- breakup, 937
- bubble dynamics, 915
- Buckingham π theorem, 303
- cavitation, 1017
- CFD, 915
- characteristics, 575
- coalescence, 937
- coflow, 1065
- combustion instability, 273
- computational fluid dynamics, 1017
- confined annular layer, 555
- conical swirl atomizer, 97
- contact angle, 895
- cosserat theory, 949
- coswirl, 673
- counterswirl, 673
- coupled level set/volume of fluid method, 281
- crossflow, 23
- DDM, 403
- deposition, 193
- design of experiment, 1017
- diesel spray formation, 1089
- diesel spray, 41, 599, 625, 651, 723
- diesel, 779
- diesel, 251
- direct injection gasoline engines, 841
- discharge coefficient, 273
- DQMOM, 403
- drop dynamics model, 349
- drop impact, 801
- drop morphology, 223
- drop size distribution, 115
- drop size, 181, 431
- droplet collision modelling, 1089
- droplet count, 367
- droplet impact, 895
- droplet impingement cooling, 875
- droplet lifetime and path length, 999
- droplet size and velocity, 859
- droplet size, 303, 747
- droplets, 193
- drops, 937
- electrified sheet, 155
- engine combustion network, 251, 779
- entrainment, 193
- evaporating mist aerodynamics, 977
- evaporation, 403
- experimental, 841, 859
- eyepiece, 115
- film thickness measurement, 875
- flame spray pyrolysis, 495
- flame structure, 495
- flash boiling, 467
- flow rate, 761
- fractal dimension, 673

free spray, 599
 gas-to-liquid (GTL), 575
 gel propellant simulant, 525
 gelled propellant simulant, 431
 generalized gamma function, 223
 global sizing velocimetry, 575
 group hole nozzle, 1089
 height of impingement spray, 625
 high-speed cinematography, 303
 hollow cone spray, 841, 859
 image analysis drop sizing, 223
 impact angle, 875
 impact spacing, 875
 impingement angle, 723
 impingement disk, 651
 impingement distance, 625, 651
 inclined wall, 651
 inertial force field, 349
 injection pressure, 651
 injection timing, 41
 injectors for combustion engines, 375
 inlet air modulation, 129
 insert, 1035
 instability wavelength, 525
 instability, 155
 interaction, 937
 interfacial tension, 303
 jet in crossflow, 129, 303
 jet number, 625
 jet penetration, 303
 k-factor, 1017
 Kliachko's theory, 97
 large eddy simulation, 281
 laser diffraction drop sizing, 223
 laser diffraction spectroscopy, 303
 laser diffraction, 181, 747
 laser-induced fluorescence, 193
 LIF-PIV, 599
 ligament and drop diameters, 525
 linear instability analysis, 949
 linear stability analysis, 23, 555
 linear stability theory, 525
 liquid sheet, 695
 liquid spray, 81, 223
 malvern, 1035
 mass transfer efficiency, 115
 mathematical modeling, 977
 microscopic, 575
 microstructure, 801
 mie imaging, 467
 momentum flux ratio, 1
 momentum ratio, 23
 multijet bit, 761
 multiphase flow, 495
 multiphase, 695
 multistream injectors, 467
 nanostructure, 495
 needle lift, 841, 859
 non-Newtonian spray, 403
 nontangential inlet, 827
 non-VOC, 1035
 nozzle cavitation, 915
 nozzle, 1017
 numerical analysis, 495
 numerical investigation, 977
 optical techniques, 1089
 oscillating crossflow, 129
 oscillations, 895
 particles, 937
 PCCI engines, 41
 phase Doppler interferometer, 115
 piezo injector, 841, 859
 PIV, 599, 723
 porous injector, 1
 porous surface, 801
 post impingement regime, 801
 post impingement, 723
 power-law fluid, 827
 prefilming, 673
 pressure atomizer, 81
 pressure drop, 273
 primary breakup, 281
 pulsation, 827
 PVP/water solution, 403
 radial horizontal well, 761
 radiography, 251
 Rayleigh-Plesset, 915
 Rayleigh-Taylor waves, 23
 rheology, 431
 RIF, 779
 round liquid jet, 23
 sauter mean diameter, 1065
 scale-up, 495
 self-propelled force, 761
 sheet breakup length, 431, 525
 spatial-temporal mode, 555

spectral method, 155
spray A, 251,779
spray angle, 1065
spray application, 367
spray atomization, 181,747
spray boundary detection, 1
spray characteristics, 827
spray cooling, 875
spray droplet flow, 599
spray droplets, 367
spray trajectory, 129
spray, 115,251,375,575
spray/wall interaction model, 41
stability, 695
subatmospheric pressure, 467
swirl injector, 827
twin jets, 375
two-dimensional injector, 1
two-fluid atomizer, 1035
velocity field, 723
velocity profile, 155,1065
viscoelastic liquid, 155
volume of fluid (VoF), 97
vortex propagation, 859
wall flow, 115
wall impingement,723
wall-impinging spray, 599
wavy structure, 193
weber number, 625,651
wellbore diameter, 761
wettability, 895
x-ray, 251