

Stanford



Matthias Ihme

Professor of Mechanical Engineering and of Photon Science

CONTACT INFORMATION

- **Administrative Contact**

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Tel (650) 497-4645

Bio

BIO

Large-eddy simulation and modeling of turbulent reacting flows, non-premixed flame, aeroacoustics and combustion generated noise, turbulence and fluid dynamics, numerical methods and high-order schemes.

ACADEMIC APPOINTMENTS

- Professor, Mechanical Engineering
- Professor, Photon Science Directorate

PROFESSIONAL EDUCATION

- Ph.D, Stanford University , Mechanical Engineering (2008)
- M.Sc., University of Erlangen, Germany , Computational Engineering (2002)
- Dipl.-Ing., Munich University of Applied Sciences, Germany , Mechanical Engineering (2000)

Teaching

COURSES

2023-24

- Advanced Fluid Mechanics Multiphase Flows: ME 451A (Aut)
- Engineering Thermodynamics: ME 30 (Win)
- Gas-Turbine Design Analysis: ME 257, ME 357 (Spr)
- Wildfire Science: ME 375 (Spr)

2022-23

- Discontinuous Galerkin Methods for Fluid-Flow Simulations: ME 336 (Win)
- Engineering Thermodynamics: ME 30 (Aut)
- Wildfire Science: ME 375 (Spr)

2021-22

- Advanced Fluid Mechanics Multiphase Flows: ME 451A (Win)
- Gas-Turbine Design Analysis: ME 257 (Spr)

2020-21

- Engineering Thermodynamics: ME 30 (Win)
- Seminar in Fluid Mechanics: ENGR 298 (Win)
- The Future of Mechanical Engineering: ME 228 (Win)
- Turbulent Combustion: ME 471 (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Wai Tong Chung, Fredric Lam

Postdoctoral Faculty Sponsor

Jingcun Fan, Jen Zen Ho, Haoyuan Li, Pushan Sharma, Karl Toepperwien, Guillaume Vignat, Taekeun Yoon

Doctoral Dissertation Advisor (AC)

Bassem Akoush, Matthew Bonanni, Wai Tong Chung, James Hansen, Benyamin Krisna, Nguyen Ly, Arijit Majumdar, Priyanka Muhunthan, Lauren Simitz, David Wu

Master's Program Advisor

Ziang Cao, Yixiang Guo, Chris Li, Dipanshu Mittal, Varun Pathak, Charles Tilney-Volk

Postdoctoral Research Mentor

Davy Brouzet

Doctoral (Program)

Jin Lee, Christopher Williams, Beverley Yeo, Khaled Younes

Publications

PUBLICATIONS

- **Analysis of weak secondary waves in a rotating detonation engine using large-eddy simulation and wavenumber-domain filtering** *COMBUSTION AND FLAME*
Vignat, G., Brouzet, D., Bonanni, M., Ihme, M.
2024; 263
- **Mixtures Recomposition by Neural Nets: A Multidisciplinary Overview.** *Journal of chemical information and modeling*
Nicolle, A., Deng, S., Ihme, M., Kuzhagaliyeva, N., Ibrahim, E. A., Farooq, A.
2024
- **A versatile pressure-cell design for studying ultrafast molecular-dynamics in supercritical fluids using coherent multi-pulse x-ray scattering.** *The Review of scientific instruments*
Muhunthan, P., Li, H., Vignat, G., Toro, E. R., Younes, K., Sun, Y., Sokaras, D., Weiss, T., Rajkovic, I., Osaka, T., Inoue, I., Song, S., Sato, et al
2024; 95 (1)
- **Integrated experimental and computational analysis of porous media combustion by combining gas-phase synchrotron μ CT, IR-imaging, and pore-resolved simulations** *COMBUSTION AND FLAME*
Boigne, E., Zirwes, T., Parkinson, D. Y., Vignat, G., Muhunthan, P., Barnard, H. S., MacDowell, A. A., Ihme, M.
2024; 259
- **Analysis of direct and indirect noise in a next-generation aviation gas turbine combustor** *COMBUSTION AND FLAME*
Brouzet, D., Krisna, B., McCormick, D., Reimann, C., Mendoza, J., Ihme, M.

2024; 260

- **Autonomous screening of complex phase spaces using Bayesian optimization for SAXS measurements** *NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT*
Younes, K., Poli, M., Muhunthan, P., Rajkovic, I., Ermon, S., Weiss, T. M., Ihme, M.
2023; 1057
- **Evaluation of Electron Tomography Capabilities for Shale Imaging.** *Microscopy and microanalysis : the official journal of Microscopy Society of America, Microbeam Analysis Society, Microscopical Society of Canada*
Frouté, L., Boigné, E., Jolivet, I. C., Chaput, E., Creux, P., Ihme, M., Kovscek, A. R.
2023
- **Improving volume-averaged simulations of matrix-stabilized combustion through direct X-ray μ CT characterization: Application to NH_3 -air combustion** *COMBUSTION AND FLAME*
Zirwes, T., Vignat, G., Toro, E. R., Boigne, E., Younes, K., Trimis, D., Ihme, M.
2023; 257
- **Accelerating Large-Eddy Simulations of Clouds With Tensor Processing Units** *JOURNAL OF ADVANCES IN MODELING EARTH SYSTEMS*
Chammas, S., Wang, Q., Schneider, T., Ihme, M., Chen, Y., Anderson, J.
2023; 15 (10)
- **Assessing requirements for modeling radiation in diffusion flames using an analytical, non-local model** *COMBUSTION AND FLAME*
Fraga, G. C., Wu, B., Ihme, M., Zhao, X.
2023; 255
- **Local Rearrangement in Adsorption Layers of Nanoconfined Ethane** *JOURNAL OF PHYSICAL CHEMISTRY C*
Simeski, F., Wu, J., Hu, S., Tsotsis, T. T., Jessen, K., Ihme, M.
2023
- **Recurrent Convolutional Deep Neural Networks for Modeling Time-Resolved Wildfire Spread Behavior** *FIRE TECHNOLOGY*
Burge, J., Bonanni, M. R., Hu, R., Ihme, M.
2023
- **LES of HCCI combustion of iso-octane/air in a flat-piston rapid compression machine** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Chung, W., Ly, N., Ihme, M.
2023; 39 (4): 5309-5317
- **Combustion of lean ammonia-hydrogen fuel blends in a porous media burner** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Vignat, G., Akoush, B., Toro, E. R., Boigne, E., Ihme, M.
2023; 39 (4): 4195-4204
- **Interaction of preferential evaporation and low-temperature chemistry in multicomponent counterflow spray flames** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Bonanni, M., Ihme, M.
2023; 39 (2): 2565-2573
- **Wall heat transfer and flame structure transitions in stagnating spray flames** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Mohaddes, D., Ihme, M.
2023; 39 (2): 2683-2692
- **Jet-entrainment sampling: A new method for extracting particles from flames** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Michelsen, H. A., Boigne, E., Schrader, P. E., Johansson, K., Campbell, M. F., Bambha, R. P., Ihme, M.
2023; 39 (1): 847-855
- **The Local Electronic Structure of Supercritical CO_2 from X-ray Raman Spectroscopy and Atomistic-Scale Modeling.** *The journal of physical chemistry letters*
Muhunthan, P., Paredes Mellone, O., Kroll, T., Sokaras, D., Ihme, M.
2023: 4955-4961
- **Analysis of ducted fuel injection at high-pressure transcritical conditions using large-eddy simulations** *INTERNATIONAL JOURNAL OF ENGINE RESEARCH*

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- Guo, J., Brouzet, D., Chung, W., Ihme, M.
2023
- **Supercritical fluids behave as complex networks.** *Nature communications*
Simeski, F., Ihme, M.
2023; 14 (1): 1996
 - **Reaction nanoscopy of ion emission from sub-wavelength propanediol droplets** *NANOPHOTONICS*
Rosenberger, P., Dagar, R., Zhang, W., Majumdar, A., Neuhaus, M., Ihme, M., Bergues, B., Kling, M. F.
2023
 - **A Review of Physics-Informed Machine Learning in Fluid Mechanics** *ENERGIES*
Sharma, P., Chung, W., Akoush, B., Ihme, M.
2023; 16 (5)
 - **Experimental and numerical investigation of flame stabilization and pollutant formation in matrix stabilized ammonia-hydrogen combustion** *COMBUSTION AND FLAME*
Vignat, G., Zirwes, T., Toro, E. R., Younes, K., Boigne, E., Muhunthan, P., Simitz, L., Trimis, D., Ihme, M.
2023; 250
 - **Cost-constrained adaptive simulations of transient spray combustion in a gas turbine combustor** *COMBUSTION AND FLAME*
Mohaddes, D., Brouzet, D., Ihme, M.
2023; 249
 - **Regimes of evaporation and mixing behaviors of nanodroplets at transcritical conditions** *FUEL*
Ly, N., Majumdar, A., Ihme, M.
2023; 331
 - **A high-resolution large-eddy simulation framework for wildland fire predictions using TensorFlow** *INTERNATIONAL JOURNAL OF WILDLAND FIRE*
Wang, Q., Ihme, M., Linn, R. R., Chen, Y., Yang, V., Sha, F., Clements, C., Mcdanold, J. S., Anderson, J.
2023; 32 (12): 1711-1725
 - **Dynamics and structure of detonations in stratified product-gas diluted mixtures** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Brouzet, D., Vignat, G., Ihme, M.
2023; 39 (3): 2855-2864
 - **Analysis of real-fluid thermodynamic effects on turbulent statistics in transcritical channel flows** *Physical Review Fluids*
Li, F., Guo, J., Bai, B., Ihme, M.
2023; 8 (2): 024605
 - **Corrosive Influence of Carbon Dioxide on Crack Initiation in Quartz: Comparison With Liquid Water and Vacuum Environments** *Journal of Geophysical Research: Solid Earth*
Simeski, F., Ihme, M.
2023; 128 (1)
 - **The dynamics of non-premixed flames subjected to a transverse acoustic mode** *COMBUSTION AND FLAME*
Brouzet, D., You, S., Plascencia, M. A., Roa, M., Ihme, M.
2022; 246
 - **BLASTNet: A call for community-involved big data in combustion machine learning** *APPLICATIONS IN ENERGY AND COMBUSTION SCIENCE*
Chung, W., Jung, K., Chen, J. H., Ihme, M.
2022; 12
 - **Computing Thermodynamic Properties of Fluids Augmented by Nanoconfinement: Application to Pressurized Methane.** *The journal of physical chemistry. B*
Singh, N., Simeski, F., Ihme, M.
2022
 - **Simulations of Dusty Flows over Full-Scale Capsule During Martian Entry** *JOURNAL OF SPACECRAFT AND ROCKETS*
Ching, E. J., Singh, N., Ihme, M.
2022
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- **Turbulence-induced bias in time-averaged laser absorption tomography of correlated concentration and temperature fields with a first-order correction** *COMBUSTION AND FLAME*
Wei, C., Perakis, N., Pineda, D., Egolfopoulos, F. N., Ihme, M., Spearrin, R.
2022; 242
- **Destabilization of binary mixing layer in supercritical conditions** *JOURNAL OF FLUID MECHANICS*
Ly, N., Ihme, M.
2022; 945
- **Combustion machine learning: Principles, progress and prospects** *PROGRESS IN ENERGY AND COMBUSTION SCIENCE*
Ihme, M., Chung, W., Mishra, A.
2022; 91
- **On the hot surface ignition of a wall-stagnating spray flame** *COMBUSTION AND FLAME*
Mohaddes, D., Ihme, M.
2022; 240
- **Interpretable data-driven methods for subgrid-scale closure in LES for transcritical LOX/GCH₄ combustion** *COMBUSTION AND FLAME*
Chung, W., Mishra, A., Ihme, M.
2022; 239
- **A TensorFlow simulation framework for scientific computing of fluid flows on tensor processing units** *COMPUTER PHYSICS COMMUNICATIONS*
Wang, Q., Ihme, M., Chen, Y., Anderson, J.
2022; 274
- **Computation of hypersonic viscous flows with the thermally perfect gas model using a discontinuous Galerkin method** *INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN FLUIDS*
Ching, E. J., Bensassi, K., Lv, Y., Ihme, M.
2022
- **Chemical and Reactive Transport Processes Associated with Hydraulic Fracturing of Unconventional Oil/Gas Shales.** *Chemical reviews*
Jew, A. D., Druhan, J. L., Ihme, M., Kovscek, A. R., Battiatto, I., Kaszuba, J. P., Bargar, J. R., Brown, G. E.
2022
- **General Drag Coefficient for Flow over Spherical Particles** *AIAA JOURNAL*
Singh, N., Kroells, M., Li, C., Ching, E., Ihme, M., Hogan, C. J., Schwartzentruber, T. E.
2022; 60 (2): 587-597
- **Structural analysis of biomass pyrolysis and oxidation using in-situ X-ray computed tomography** *COMBUSTION AND FLAME*
Boigne, E., Bennett, N., Wang, A., Ihme, M.
2022; 235
- **Towards Data-Informed Motion Artifact Reduction in Quantitative CT Using Piecewise Linear Interpolation** *IEEE TRANSACTIONS ON COMPUTATIONAL IMAGING*
Boigne, E., Parkinson, D. Y., Ihme, M.
2022; 8: 917-932
- **Quail: A lightweight open-source discontinuous Galerkin code in Python for teaching and prototyping** *SOFTWAREX*
Ching, E. J., Bornhoft, B., Lasemi, A., Ihme, M.
2022; 17
- **Structure of the thermal boundary layer in turbulent channel flows at transcritical conditions** *Journal of Fluid Mechanics*
Guo, J., Yang, X. I., Ihme, M.
2022; 934 (A45)
- **Quantitative X-ray computed tomography: Prospects for detailed in-situ imaging in bench-scale fire measurements** *FIRE SAFETY JOURNAL*
Boigne, E., Bennett, N., Wang, A., Ihme, M.
2021; 126
- **Imaging the short-lived hydroxyl-hydronium pair in ionized liquid water.** *Science (New York, N.Y.)*

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- Lin, M., Singh, N., Liang, S., Mo, M., Nunes, J. P., Ledbetter, K., Yang, J., Kozina, M., Weathersby, S., Shen, X., Cordones, A. A., Wolf, T. J., Pemmaraju, et al
2021; 374 (6563): 92-95
- **Heat transfer augmentation by recombination reactions in turbulent reacting boundary layers at elevated pressures** *INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER*
Perakis, N., Haidn, O. J., Ihme, M.
2021; 178
 - **Infrasound Radiation From Impulsive Volcanic Eruptions: Nonlinear Aeroacoustic 2D Simulations** *JOURNAL OF GEOPHYSICAL RESEARCH-SOLID EARTH*
Watson, L. M., Dunham, E. M., Mohaddes, D., Labahn, J., Jaravel, T., Ihme, M.
2021; 126 (9)
 - **Development of a particle collision algorithm for discontinuous Galerkin simulations of compressible multiphase flows** *JOURNAL OF COMPUTATIONAL PHYSICS*
Ching, E. J., Ihme, M.
2021; 436
 - **Efficient projection kernels for discontinuous Galerkin simulations of disperse multiphase flows on arbitrary curved elements** *JOURNAL OF COMPUTATIONAL PHYSICS*
Ching, E. J., Ihme, M.
2021; 435
 - **Hot surface ignition of a wall-impinging fuel spray: Modeling and analysis using large-eddy simulation** *COMBUSTION AND FLAME*
Mohaddes, D., Boettcher, P., Ihme, M.
2021; 228: 443–56
 - **Analysis of droplet evaporation in isotropic turbulence through droplet-resolved DNS** *INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER*
Dodd, M. S., Mohaddes, D., Ferrante, A., Ihme, M.
2021; 172
 - **Effects of evaporation on chemical reactions in counterflow spray flames** *PHYSICS OF FLUIDS*
Xie, W., Wu, W., Ren, Z., Liu, H., Ihme, M.
2021; 33 (6)
 - **A discontinuous Galerkin method for wall-modeled large-eddy simulations** *COMPUTERS & FLUIDS*
Lv, Y., Yang, X. A., Park, G., Ihme, M.
2021; 222
 - **Limitations of flamelet formulation for modeling turbulent pool fires** *COMBUSTION AND FLAME*
Wu, B., Ihme, M., Zhao, X.
2021; 227: 346–58
 - **Sensitivity of Hypersonic Dusty Flows to Physical Modeling of the Particle Phase** *JOURNAL OF SPACECRAFT AND ROCKETS*
Ching, E., Barnhardt, M., Ihme, M. I.
2021; 58 (3): 653-667
 - **Data-assisted combustion simulations with dynamic submodel assignment using random forests** *COMBUSTION AND FLAME*
Chung, W., Mishra, A., Perakis, N., Ihme, M.
2021; 227: 172–85
 - **Using adjoint-based optimization to enhance ignition in non-premixed jets** *PROCEEDINGS OF THE ROYAL SOCIETY A-MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES*
Qadri, U., Magri, L., Ihme, M., Schmid, P. J.
2021; 477 (2245)
 - **Using adjoint-based optimization to enhance ignition in non-premixed jets.** *Proceedings. Mathematical, physical, and engineering sciences*
Qadri, U. A., Magri, L., Ihme, M., Schmid, P. J.
2021; 477 (2245): 20200472
 - **Analysis of low-temperature chemistry in a turbulent swirling spray flame near lean blow-out** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
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- Mohaddes, D., Xie, W., Ihme, M.
2021; 38 (3): 3435-3443
- **Structural analysis and regime diagrams of laminar counterflow spray flames with low-temperature chemistry** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Xie, W., Govindaraju, P. B., Ren, Z., Ihme, M.
2021; 38 (2): 3193-3200
 - **Pore-resolved simulations of porous media combustion with conjugate heat transfer** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Ferguson, J. C., Sobhani, S., Ihme, M.
2021; 38 (2): 2127-2134
 - **Investigation of CO recombination in the boundary layer of CH₄/O₂ rocket engines** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Perakis, N., Haidn, O. J., Ihme, M.
2021; 38 (4): 6403-6411
 - **Stability diagram and blow-out mechanisms of turbulent non-premixed combustion** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Li, D., Ihme, M.
2021; 38 (4): 6337-6344
 - **Kinetics for the hydrolysis of Ti(OC₃H₇)(₄) : A molecular dynamics simulation study** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Wei, J., Ostadhosseini, A., Li, S., Ihme, M.
2021; 38 (1): 1433-1440
 - **Analysis of core-noise contributions in a realistic gas-turbine combustor operated near lean blow-out** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Shao, C., Maeda, K., Ihme, M.
2021; 38 (4): 6203-6211
 - **Experimental feasibility of tailored porous media burners enabled via additive manufacturing** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Sobhani, S., Muhunthan, P., Boigne, E., Mohaddes, D., Ihme, M.
2021; 38 (4): 6713-6722
 - **Pareto-efficient combustion framework for predicting transient ignition dynamics in turbulent flames: Application to a pulsed jet-in-hot-coflow flame** *COMBUSTION AND FLAME*
Douasbin, Q., Ihme, M., Arndt, C.
2021; 223: 153–65
 - **Carbon oxidation in turbulent premixed jet flames: A comparative experimental and numerical study of ethylene, n-heptane, and toluene** *COMBUSTION AND FLAME*
Pineda, D., Paxton, L., Perakis, N., Wei, C., Luna, S., Kahouli, H., Ihme, M., Egolfopoulos, F. N., Spearin, R.
2020; 221: 371–83
 - **Thermodynamic cycle analysis of superadiabatic matrix-stabilized combustion for gas turbine engines** *ENERGY*
Mohaddes, D., Chang, C. T., Ihme, M.
2020; 207
 - **Modeling Heat-Shield Erosion due to Dust Particle Impacts for Martian Entries**
Palmer, G., Ching, E., Ihme, M., Allofs, D., Guelhan, A.
AMER INST AERONAUTICS ASTRONAUTICS.2020: 857–75
 - **StanShock: a gas-dynamic model for shock tube simulations with non-ideal effects and chemical kinetics** *SHOCK WAVES*
Grogan, K., Ihme, M.
2020; 30 (4): 425-438
 - **Additive Manufacturing of Tailored Macroporous Ceramic Structures for High-Temperature Applications** *ADVANCED ENGINEERING MATERIALS*
Sobhani, S., Allan, S., Muhunthan, P., Boigne, E., Ihme, M.
2020
 - **A two-way coupled Euler-Lagrange method for simulating multiphase flows with discontinuous Galerkin schemes on arbitrary curved elements** *JOURNAL OF COMPUTATIONAL PHYSICS*
Ching, E. J., Brill, S. R., Barnhardt, M., Ihme, M.

2020; 405

- **Experimental investigation of lean premixed pre-vaporized liquid-fuel combustion in porous media burners at elevated pressures up to 20 bar** *COMBUSTION AND FLAME*
Sobhani, S., Legg, J., Bartz, D. F., Kojima, J. J., Chang, C. T., Sullivan, J. D., Moder, J. P., Ihme, M.
2020; 212: 123–34
- **Modeling Adsorption in Silica Pores via Minkowski Functionals and Molecular Electrostatic Moments** *Energies*
Simeski, F., Boelens, A. M., Ihme, M.
2020; 13 (22)
- **Simultaneous in-situ measurements of gas temperature and pyrolysis of biomass smoldering via X-ray computed tomography.** *Proceedings of the Combustion Institute*
Boigne, E., Bennett, N. R., Wang, A., Mohri, K., Ihme, M.
2020
- **Ensemble Kalman Filter for Assimilating Experimental Data into Large-Eddy Simulations of Turbulent Flows** *FLOW TURBULENCE AND COMBUSTION*
Labahn, J. W., Wu, H., Harris, S. R., Coriton, B., Frank, J. H., Ihme, M.
2019
- **Data Assimilation and Optimal Calibration in Nonlinear Models of Flame Dynamics** *JOURNAL OF ENGINEERING FOR GAS TURBINES AND POWER-TRANSACTIONS OF THE ASME*
Yu, H., Jaravel, T., Ihme, M., Juniper, M. P., Magri, L.
2019; 141 (12)
- **Molecular diffusion and phase stability in high-pressure combustion** *COMBUSTION AND FLAME*
Yao, M. X., Hickey, J., Ma, P. C., Ihme, M.
2019; 210: 302–14
- **Numerical Analysis of Heat and Mass Transfer Coupled With Gaseous Fuel Injection in Reactive Porous Media** *JOURNAL OF HEAT TRANSFER-TRANSACTIONS OF THE ASME*
Cheng, Z., Yang, J., Guo, Z., Fu, P., Ihme, M., Wang, Q.
2019; 141 (11)
- **Efficient time-stepping techniques for simulating turbulent reactive flows with stiff chemistry** *COMPUTER PHYSICS COMMUNICATIONS*
Wu, H., Ma, P. C., Ihme, M.
2019; 243: 81–96
- **Closure of the scalar dissipation rate in the spray flamelet equations through a transport equation for the gradient of the mixture fraction** *COMBUSTION AND FLAME*
Olguin, H., Scholtissek, A., Gonzalez, S., Gonzalez, F., Ihme, M., Hasse, C., Gutheil, E.
2019; 208: 330–50
- **A regularized deconvolution model for sub-grid dispersion in large eddy simulation of turbulent spray flames** *COMBUSTION AND FLAME*
Wang, Q., Zhao, X., Ihme, M.
2019; 207: 89–100
- **Examination of diesel spray combustion in supercritical ambient fluid using large-eddy simulations** *INTERNATIONAL JOURNAL OF ENGINE RESEARCH*
Chung, W., Ma, P. C., Ihme, M.
2019
- **A regularized deconvolution method for turbulent closure modeling in implicitly filtered large-eddy simulation** *COMBUSTION AND FLAME*
Wang, Q., Ihme, M.
2019; 204: 341–55
- **On the numerical behavior of diffuse-interface methods for transcritical real-fluids simulations** *INTERNATIONAL JOURNAL OF MULTIPHASE FLOW*
Ma, P. C., Wu, H., Banuti, D. T., Ihme, M.
2019; 113: 231–49
- **X-ray Computed Tomography for Flame-Structure Analysis of Laminar Premixed Flames.** *Combustion and flame*
Boigne, E., Muhunthan, P., Mohaddes, D., Wang, Q., Sobhani, S., Hinshaw, W., Ihme, M.

2019; 200: 142–54

- **X-ray computed tomography for flame-structure analysis of laminar premixed flames** *COMBUSTION AND FLAME*
Boigne, E., Muhunthan, P., Mohaddes, D., Wang, Q., Sobhani, S., Hinshaw, W., Ihme, M.
2019; 200: 142–54
- **Error-controlled kinetics reduction based on non-linear optimization and sensitivity analysis** *COMBUSTION AND FLAME*
Jaravel, T., Wu, H., Ihme, M.
2019; 200: 192–206
- **DATA ASSIMILATION AND OPTIMAL CALIBRATION IN NONLINEAR MODELS OF FLAME DYNAMICS**
Yu, H., Jaravel, T., Ihme, M., Juniper, M. P., Magri, L., ASME
AMER SOC MECHANICAL ENGINEERS.2019
- **Functionalization of 2D materials for enhancing OER/ORR catalytic activity in Li–oxygen batteries** *Communications Chemistry*
Ostadhossein, A., Guo, J., Simeski, F., Ihme, M.
2019; 2 (95)
- **Modulation of heat transfer for extended flame stabilization in porous media burners via topology gradation** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Sobhani, S., Mohaddes, D., Boigne, E., Muhunthan, P., Ihme, M.
2019; 37 (4): 5697–5704
- **Pareto-efficient combustion modeling for improved CO-emission prediction in LES of a piloted turbulent dimethyl ether jet flame** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Wu, H., Ma, P. C., Jaravel, T., Ihme, M.
2019; 37 (2): 2267–76
- **Analysis of transient blow-out dynamics in a swirl-stabilized combustor using large-eddy simulations** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Ma, P. C., Wu, H., Labahn, J. W., Jaravel, T., Ihme, M.
2019; 37 (4): 5073–82
- **Data assimilation using high-speed measurements and LES to examine local extinction events in turbulent flames** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Labahn, J. W., Wu, H., Coriton, B., Frank, J. H., Ihme, M.
2019; 37 (2): 2259–66
- **Shock capturing for discontinuous Galerkin methods with application to predicting heat transfer in hypersonic flows** *JOURNAL OF COMPUTATIONAL PHYSICS*
Ching, E. J., Lv, Y., Gnoffob, P., Barnhardt, M., Ihme, M.
2019; 376: 54–75
- **A new ignition time model applied to super knock** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Grogan, K. P., Ihme, M.
2019; 37 (3): 3487–94
- **Assessment of spray combustion models in large-eddy simulations of a polydispersed acetone spray flame** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Wang, Q., Jaravel, T., Ihme, M.
2019; 37 (3): 3335–44
- **Coupling of turbulence on the ignition of multicomponent sprays** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Govindaraju, P. B., Jaravel, T., Ihme, M.
2019; 37 (3): 3295–3302
- **Large-eddy simulations of transcritical injection and auto-ignition using diffuse-interface method and finite-rate chemistry** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Ma, P. C., Wu, H., Jaravel, T., Bravo, L., Ihme, M.
2019; 37 (3): 3303–10
- **Large eddy simulations of diesel-fuel injection and auto-ignition at transcritical conditions**

Ihme, M., Ma, P. C., Bravo, L.
SAGE PUBLICATIONS LTD.2019: 58–68

- **Assessment of differential diffusion effects in flamelet modeling of oxy-fuel flames** *COMBUSTION AND FLAME*
Gierth, S., Hunger, F., Popp, S., Wu, H., Ihme, M., Hasse, C.
2018; 197: 134–44
- **Thermodynamic structure of supercritical LOX-GH2 diffusion flames** *COMBUSTION AND FLAME*
Banuti, D. T., Ma, P. C., Hickey, J., Ihme, M.
2018; 196: 364–76
- **Identification of governing physical processes of irregular combustion through machine learning**
Grogan, K. P., Ihme, M.
SPRINGER.2018: 941-954
- **Nonadiabatic Flamelet Formulation for Predicting Wall Heat Transfer in Rocket Engines** *AIAA JOURNAL*
Ma, P. C., Wu, H., Ihme, M., Hickey, J.
2018; 56 (6): 2336–49
- **Structure of wall-bounded flows at transcritical conditions** *PHYSICAL REVIEW FLUIDS*
Ma, P. C., Yang, X. A., Ihme, M.
2018; 3 (3)
- **Effects of Nozzle Helmholtz Number on Indirect Combustion Noise by Compositional Perturbations** *JOURNAL OF ENGINEERING FOR GAS TURBINES AND POWER-TRANSACTIONS OF THE ASME*
Magri, L., O'Brien, J., Ihme, M.
2018; 140 (3)
- **Phase transitions of ordered ice in graphene nanocapillaries and carbon nanotubes** *SCIENTIFIC REPORTS*
Raju, M., van Duin, A., Ihme, M.
2018; 8: 3851
- **Atomistic and continuum scale modeling of functionalized graphyne membranes for water desalination** *NANOSCALE*
Raju, M., Govindaraju, P. B., van Duin, A. T., Ihme, M.
2018; 10 (8): 3969–80
- **Formulation of optimal surrogate descriptions of fuels considering sensitivities to experimental uncertainties** *COMBUSTION AND FLAME*
Govindaraju, P. B., Ihme, M.
2018; 188: 337–56
- **On underresolved simulations of compressible turbulence using an entropy-bounded DG method: Solution stabilization, scheme optimization, and benchmark against a finite-volume solver** *COMPUTERS & FLUIDS*
Lv, Y., Ma, P. C., Ihme, M.
2018; 161: 89–106
- **Flamelet regime characterization for non-premixed turbulent combustion simulations** *COMBUSTION AND FLAME*
Chan, W., Ihme, M.
2017; 186: 220–35
- **Lyapunov exponent as a metric for assessing the dynamic content and predictability of large-eddy simulations** *PHYSICAL REVIEW FLUIDS*
Nastac, G., Labahn, J. W., Magri, L., Ihme, M.
2017; 2 (9)
- **A general probabilistic approach for the quantitative assessment of LES combustion models** *COMBUSTION AND FLAME*
Johnson, R., Wu, H., Ihme, M.
2017; 183: 88–101
- **An entropy-stable hybrid scheme for simulations of transcritical real-fluid flows** *JOURNAL OF COMPUTATIONAL PHYSICS*
Ma, P. C., lv, Y., Ihme, M.
2017; 340: 330–57

- **Fuel effects on lean blow-out in a realistic gas turbine combustor** *COMBUSTION AND FLAME*
Esclapez, L., Ma, P. C., Mayhew, E., Xu, R., Stouffer, S., Lee, T., Wang, H., Ihme, M.
2017; 181: 82–99
- **High-order discontinuous Galerkin method for applications to multicomponent and chemically reacting flows** *ACTA MECHANICA SINICA*
Lv, Y., Ihme, M.
2017; 33 (3): 486–99
- **Similarity law for Widom lines and coexistence lines** *PHYSICAL REVIEW E*
Banuti, D. T., Raju, M., Ihme, M.
2017; 95 (5)
- **Non-equilibrium wall-modeling for internal combustion engine simulations with wall heat transfer** *INTERNATIONAL JOURNAL OF ENGINE RESEARCH*
Ma, P. C., Greene, M., Sick, V., Ihme, M.
2017; 18 (1-2): 15-25
- **Regularized deconvolution method for turbulent combustion modeling** *COMBUSTION AND FLAME*
Wang, Q., Ihme, M.
2017; 176: 125-142
- **An investigation of internal flame structure in porous media combustion via X-ray Computed Tomography** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Dunnmon, J., Sobhani, S., Wu, M., Fahrig, R., Ihme, M.
2017; 36 (3): 4399-4408
- **Widom Lines in Binary Mixtures of Supercritical Fluids.** *Scientific reports*
Raju, M. n., Banuti, D. T., Ma, P. C., Ihme, M. n.
2017; 7 (1): 3027
- **SPECIES DEPENDENCY OF THE COMPOSITIONAL INDIRECT NOISE MECHANISM**
O'Brien, J. D., Ihme, M., ASME
AMER SOC MECHANICAL ENGINEERS.2017
- **EFFECTS OF NOZZLE HELMHOLTZ NUMBER ON INDIRECT COMBUSTION NOISE BY COMPOSITIONAL PERTURBATIONS**
Magri, L., O'Brien, J., Ihme, M., ASME
AMER SOC MECHANICAL ENGINEERS.2017
- **Combustion and Engine-Core Noise** *ANNUAL REVIEW OF FLUID MECHANICS, VOL 49*
Ihme, M.
2017; 49: 277-310
- **Regimes describing shock boundary layer interaction and ignition in shock tubes** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Grogan, K. P., Ihme, M.
2017; 36 (2): 2927-2935
- **Numerical investigation of soot-flame-vortex interaction** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Franzelli, B., Cuoci, A., Stagni, A., Ihme, M., Faravelli, T., Candel, S.
2017; 36 (1): 753-761
- **The role of preferential evaporation on the ignition of multicomponent fuels in a homogeneous spray/air mixture** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Stagni, A., Esclapez, L., Govindaraju, P., Cuoci, A., Faravelli, T., Ihme, M.
2017; 36 (2): 2483-2491
- **The cross-scale physical-space transfer of kinetic energy in turbulent premixed flames** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
O'Brien, J., Towerly, C. A., Hamlington, P. E., Ihme, M., Poludnenko, A. Y., Urzay, J.
2017; 36 (2): 1967-1975
- **Development and Analysis of Wall Models for Internal Combustion Engine Simulations Using High-speed Micro-PIV Measurements** *FLOW TURBULENCE AND COMBUSTION*

-
- Ma, P. C., Ewan, T., Jainski, C., Lu, L., Dreizler, A., Sick, V., Ihme, M.
2017; 98 (1): 283-309
- **Classification and lift-off height prediction of non-premixed MILD and autoignitive flames** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Evans, M. J., Medwell, P. R., Wu, H., Stagni, A., Ihme, M.
2017; 36 (3): 4297-4304
 - **Multiple-scale thermo-acoustic stability analysis of a coaxial jet combustor** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Magri, L., See, Y., Tammisola, O., Ihme, M., Juniper, M. P.
2017; 36 (3): 3863-3871
 - **Compliance of combustion models for turbulent reacting flow simulations** *FUEL*
Wu, H., Ihme, M.
2016; 186: 853-863
 - **Group contribution method for multicomponent evaporation with application to transportation fuels** *INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER*
Govindaraju, P. B., Ihme, M.
2016; 102: 833-845
 - **An entropy-residual shock detector for solving conservation laws using high-order discontinuous Galerkin methods** *JOURNAL OF COMPUTATIONAL PHYSICS*
Lv, Y., See, Y. C., Ihme, M.
2016; 322: 448-472
 - **Compositional inhomogeneities as a source of indirect combustion noise** *JOURNAL OF FLUID MECHANICS*
Magri, L., O'Brien, J., Ihme, M.
2016; 799
 - **Spectral kinetic energy transfer in turbulent premixed reacting flows** *PHYSICAL REVIEW E*
Towery, C. A., Poludnenko, A. Y., Urzay, J., O'Brien, J., Ihme, M., Hamlington, P. E.
2016; 93 (5)
 - **Phase transitions in quasi 1-D and 2-D nanoconfined water**
Raju, M., Van Duin, A., Ihme, M.
AMER CHEMICAL SOC.2016
 - **Reaxff reactive force field study of oriented attachment of TiO₂ nanocrystals in non-aqueous solvents**
Raju, M., Penn, R., Fichthorn, K., Ihme, M.
AMER CHEMICAL SOC.2016
 - **Water desalination and selective ion-separation using single-layer graphyne and hydrogenated graphyne membranes at realistic reverse-osmosis pressures**
Raju, M., Van Duin, A., Ihme, M.
AMER CHEMICAL SOC.2016
 - **Characterizing spray flame-vortex interaction: A spray spectral diagram for extinction** *COMBUSTION AND FLAME*
Franzelli, B., Vie, A., Ihme, M.
2016; 163: 100-114
 - **On the generalisation of the mixture fraction to a monotonic mixing-describing variable for the flamelet formulation of spray flames** *COMBUSTION THEORY AND MODELLING*
Franzelli, B., Vie, A., Ihme, M.
2015; 19 (6): 773-806
 - **A Pareto-efficient combustion framework with submodel assignment for predicting complex flame configurations** *COMBUSTION AND FLAME*
Wu, H., See, Y. C., Wang, Q., Ihme, M.
2015; 162 (11): 4208-4230
 - **Characterization of scalar mixing in dense gaseous jets using X-ray computed tomography** *EXPERIMENTS IN FLUIDS*
Dunmon, J., Sobhani, S., Kim, T. W., Kavscek, A., Ihme, M.
2015; 56 (10)
-

- **Entropy-bounded discontinuous Galerkin scheme for Euler equations** *JOURNAL OF COMPUTATIONAL PHYSICS*
Lv, Y., Ihme, M.
2015; 295: 715-739
- **Ignition regimes in rapid compression machines** *COMBUSTION AND FLAME*
Grogan, K. P., Goldsborough, S. S., Ihme, M.
2015; 162 (8): 3071-3080
- **An SMLD Joint PDF Model for Turbulent Non-Premixed Combustion Using the Flamelet Progress-Variable Approach** *FLOW TURBULENCE AND COMBUSTION*
Coclite, A., Pascazio, G., De Palma, P., Cutrone, L., Ihme, M.
2015; 95 (1): 97-119
- **Quantitative model-based imaging of mid-infrared radiation from a turbulent nonpremixed jet flame and plume** *COMBUSTION AND FLAME*
Rankin, B. A., Ihme, M., Gore, J. P.
2015; 162 (4): 1275-1283
- **A multi-scale asymptotic scaling and regime analysis of flamelet equations including tangential diffusion effects for laminar and turbulent flames** *COMBUSTION AND FLAME*
Scholtissek, A., Chan, W. L., Xu, H., Hunger, F., Kolla, H., Chen, J. H., Ihme, M., Hasse, C.
2015; 162 (4): 1507-1529
- **Weak and strong ignition of hydrogen/oxygen mixtures in shock-tube systems** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Grogan, K. P., Ihme, M.
2015; 35: 2181-2189
- **Large eddy simulation of a partially-premixed gas turbine model combustor** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
See, Y. C., Ihme, M.
2015; 35: 1225-1234
- **Analysis of segregation and bifurcation in turbulent spray flames: A 3D counterflow configuration** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Vie, A., Franzelli, B., Gao, Y., Lu, T., Wang, H., Ihme, M.
2015; 35: 1675-1683
- **Computational analysis of re-ignition and re-initiation mechanisms of quenched detonation waves behind a backward facing step** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Lv, Y., Ihme, M.
2015; 35: 1963-1972
- **Coupling of flame geometry and combustion instabilities based on kilohertz formaldehyde PLIF measurements** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Allison, P. M., Chen, Y., Ihme, M., Driscoll, J. F.
2015; 35: 3255-3262
- **Instability of elliptic liquid jets: Temporal linear stability theory and experimental analysis** *PHYSICS OF FLUIDS*
Amini, G., Lv, Y., Dolatabadi, A., Ihme, M.
2014; 26 (11)
- **Assessment of model assumptions and budget terms of the unsteady flamelet equations for a turbulent reacting jet-in-cross-flow** *COMBUSTION AND FLAME*
Chan, W. L., Kolla, H., Chen, J. H., Ihme, M.
2014; 161 (10): 2601-2613
- **Effects of flow-field and mixture inhomogeneities on the ignition dynamics in continuous flow reactors** *COMBUSTION AND FLAME*
Wu, H., Ihme, M.
2014; 161 (9): 2317-2326
- **Tabulated chemistry approach for diluted combustion regimes with internal recirculation and heat losses** *COMBUSTION AND FLAME*
Lamouroux, J., Ihme, M., Fiorina, B., Gicquel, O.
2014; 161 (8): 2120-2136

- **Discontinuous Galerkin method for multicomponent chemically reacting flows and combustion** *JOURNAL OF COMPUTATIONAL PHYSICS*
Lv, Y., Ihme, M.
2014; 270: 105-137
- **Modeling of Non-Equilibrium Homogeneous Turbulence in Rapidly Compressed Flows** *FLOW TURBULENCE AND COMBUSTION*
Hamlington, P. E., Ihme, M.
2014; 93 (1): 93-124
- **Effects of finite-rate chemistry and detailed transport on the instability of jet diffusion flames** *JOURNAL OF FLUID MECHANICS*
See, Y. C., Ihme, M.
2014; 745: 647-681
- **Subgrid-scale backscatter in reacting and inert supersonic hydrogen-air turbulent mixing layers** *JOURNAL OF FLUID MECHANICS*
O'Brien, J., Urzay, J., Ihme, M., Moin, P., Saghafian, A.
2014; 743: 554-584
- **Large-eddy simulation of a piloted premixed jet burner** *COMBUSTION AND FLAME*
Chen, Y., Ihme, M.
2013; 160 (12): 2896-2910
- **Effect of gravity on capillary instability of liquid jets** *PHYSICAL REVIEW E*
Amini, G., Ihme, M., Dolatabadi, A.
2013; 87 (5)
- **Effect of gravity on capillary instability of liquid jets.** *Physical Review E*
Amini, G., Ihme, M., Dolatabadi, A.
2013; 87: 053017
- **Acoustic characterization of a partially-premixed gas turbine model combustor: Syngas and hydrocarbon fuel comparisons** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Allison, P. M., Driscoll, J. F., Ihme, M.
2013; 34: 3145-3153
- **Liquid Jet Instability Under Gravity Effects.**
Amini, G., Ihme, M.
2013
- **Detailed Simulations of Shock-Bifurcation and Ignition of an Argon-diluted Hydrogen/Oxygen Mixture in a Shock Tube.**
Ihme, M., Sun, Y., Deterding, R.
2013
- **Large Eddy Simulation of Shear Coaxial Rocket Injector: Real Fluid Effects.**
Hickey, J., P., Ma, P., C., Ihme, M., Thakur, S.
2013
- **Discontinuous Galerkin Method for Compressible Viscous Reacting Flows.**
Lv, Y., Ihme, M.
2013
- **Acoustic characterization of a partially-premixed gas turbine model combustor: Syngas and hydrocarbon fuel comparisons.**
Allison, P., M., Driscoll, J., F., Ihme, M.
2013
- **Regularization of reaction progress variable for application to flamelet-based combustion models.** *Journal of Computational Physics*
Ihme, M., Shunn, L., Zhang, J.
2012; 23 (231): 7715-7721
- **On the generation of direct combustion noise in turbulent non-premixed flames** *INTERNATIONAL JOURNAL OF AEROACOUSTICS*
Ihme, M., Pitsch, H.
2012; 11 (1): 25-78

- **On the generation of direct combustion noise in turbulent nonpremixed flames.** *International Journal of Aeroacoustics*
Ihme, M., Pitsch, H.
2012; 11: 25-78
- **On the role of turbulence in rapid compression machines: Autoignition of syngas mixtures.** *Combustion and Flame*
Ihme, M.
2012; 157: 1592-1604
- **Large-eddy simulation of a jet in hot coflow burner operating in the oxygen-diluted combustion regime.** *Flow, Turbulence and Combustion*
Ihme, M., Zhang, J., He, G., Dally, B.
2012; 3 (89): 449-464
- **Reduced order modeling of turbulent reacting flows with application to scramjets.** *Journal of Propulsion and Power*
Torrez, S., M., Driscoll, J., F., Ihme, M., Fotia, M., L.
2011; 2 (27): 371-382
- **LES flamelet modeling of a three-stream MILD combustor: Analysis of flame sensitivity to scalar inflow conditions** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Ihme, M., See, Y. C.
2011; 33: 1309-1317
- **LES Modeling of a Turbulent Lifted Flame in a Vitiated Co-flow Using an Unsteady Flamelet/Progress Variable Formulation** *8th Workshop on Direct and Large-Eddy Simulation*
Ihme, M., See, Y. C.
SPRINGER.2011: 339-344
- **LES modeling of a turbulent lifted flame in a vitiated co-flow using an unsteady flamelet/progress variable formulation.** *Direct and Large-Eddy Simulation VIII, Proceedings of the Eighth International ERCOFTAC Workshop on Direct and Large-Eddy Simulation*
Ihme, M., See, Y., C.
edited by Kuerten, J., G.M.
University of Eindhoven.2011
- **LES modeling of a turbulent lifted flame in a vitiated co-flow using an unsteady flamelet/progress variable formulation.**
M., Ihme, Y., See, C.
edited by Kuerten, J., G.M.
2011
- **Characterization of flow field structure and species composition in a shear coaxial rocket GH₂/GO₂ injector: Modeling of wall heat losses.** *Presented at the 47th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, AIAA 2011-6125, San Diego, CA*
Lee, D., J., Thakur, S., Wright, J., Ihme, M., Shyy, W.
2011
- **Characterization of flow field structure and species composition in a shear coaxial rocket GH₂/GO₂ injector: Modeling of wall heat losses.**
Lee, D., J., Thakur, S., Wright, J., Ihme, M., Shyy, W.
2011
- **LES of a gaseous H₂/O₂ rocket injector: Wall heat transfer modeling.**
Lee, D., J., Ihme, M., Thakur, S., Shyy, W.
2011
- **Reconcile discrepancies of current syngas kinetics models by considering turbulence effects on ignition delay at gas-turbine relevant operating conditions.**
Ihme, M.
2011
- **LES flamelet modeling of a three-stream MILD combustor: Analysis of flame sensitivity to scalar inflow conditions.**
Ihme, M., See, Y., C.
2011
- **Construction of Optimal Artificial Neural Network Architectures for Application to Chemical Systems: Comparison of Generalized Pattern Search Method and Evolutionary Algorithm.** *Artificial Neural Networks*

Ihme, M.
InTech Open Access Publisher.2011

- **Prediction of autoignition in a lifted methane/air flame using an unsteady flamelet/progress variable model** *COMBUSTION AND FLAME*
Ihme, M., See, Y. C.
2010; 157 (10): 1850-1862
- **Prediction of autoignition in a lifted methane/air flame using an unsteady flamelet/progress variable model.** *Combustion and Flame*
Ihme, M., See, Y., C.
2010; 157: 1850-1862
- **Topological Optimization of Artificial Neural Networks Using a Pattern Search Method.** *Neural Computation and Particle Accelerators: Research, Technology and Applications (Neuroscience Research Progress)*
Ihme, M.
edited by Chabot, E., D'arras, H.
Nova Science Publishers.2010
- **Analysis of different sound source formulations to simulate combustion generated noise using a hybrid LES/APE-RF method.** *International Journal of Aeroacoustics*
Bui, T., P., Ihme, M., Schroeder, W., Pitsch, H.
2009; 1-2 (8): 95-123
- **Optimal artificial neural networks and tabulation methods for chemistry representation in LES of a bluff-body swirl-stabilized flame** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Ihme, M., Schmitt, C., Pitsch, H.
2009; 32: 1527-1535
- **Radiation of noise in turbulent non-premixed flames** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
Ihme, M., Pitsch, H., Bodony, D.
2009; 32: 1545-1553
- **Prediction of extinction and reignition in nonpremixed turbulent flames using a flamelet/progress variable model 1. A priori study and presumed PDF closure** *COMBUSTION AND FLAME*
Ihme, M., Pitsch, H.
2008; 155 (1-2): 70-89
- **Prediction of extinction and reignition in nonpremixed turbulent flames using a flamelet/progress variable model 2. Application in LES of Sandia flames D and E** *COMBUSTION AND FLAME*
Ihme, M., Pitsch, H.
2008; 155 (1-2): 90-107
- **Modeling of radiation and nitric oxide formation in turbulent nonpremixed flames using a flamelet/progress variable formulation** *PHYSICS OF FLUIDS*
Ihme, M., Pitsch, H.
2008; 20 (5)
- **Generation of optimal artificial neural networks using a pattern search algorithm: Application to approximation of chemical systems** *NEURAL COMPUTATION*
Ihme, M., Marsden, A. L., Pitsch, H.
2008; 20 (2): 573-601
- **Prediction of extinction and reignition in non-premixed turbulent flames using a flamelet/progress variable model 2. Application in LES of Sandia Flames D and E.** *Combustion and Flame*
Ihme, M., Pitsch, H.
2008; 155: 90-107
- **Modeling of radiation and nitric oxide formation in turbulent nonpremixed flames using a flamelet/progress variable formulation.** *Physics of Fluids*
Ihme, M., Pitsch, H.
2008; 20: 055110
- **Large-eddy simulation of turbulent reacting flows.** *Progress in Aerospace Sciences*
Pitsch, H., Desjardins, O., Balarac, G., Ihme, M.

2008; 6 (44): 466-478

- **Construction of optimal artificial neural networks for tabulated chemistry using a pattern search algorithm.**
Ihme, M., Pitsch, H.
2008
- **Prediction of extinction and reignition in non-premixed turbulent flames using a flamelet/progress variable model 1. A priori study and presumed PDF closure.** *Combustion and Flame*
Ihme, M., Pitsch, H.
2008; 155: 70-89
- **Generation of optimal artificial neural networks using a pattern search algorithm: Application to approximation of chemical systems.** *Neural Computation*
Ihme, M., Marsden, A., L., Pitsch, H.
2008; 20: 573–601
- **On the optimization of artificial neural networks for application to the approximation of chemical systems.** *Center for Turbulence Research Annual Research Briefs*
Ihme, M., Marsden, A., L., Pitsch, H.
2006: 105–118
- **Towards the prediction of combustion-generated noise in non-premixed turbulent flames using large-eddy simulation.** *Center for Turbulence Research Annual Research Briefs*
Ihme, M., Bodony, D., Pitsch, H.
2005: 311–323
- **Prediction of local extinction and re-ignition effects in non-premixed turbulent combustion using a flamelet/progress variable approach** *30th International Symposium on Combustion*
Ihme, M., Cha, C. M., Pitsch, H.
ELSEVIER SCIENCE INC.2005: 793–800
- **Stochastic mixing model with power law decay of variance** *PHYSICAL REVIEW E*
Fedotov, S., Ihme, M., Pitsch, H.
2005; 71 (1)
- **Stochastic mixing model with power law decay of variance.** *Physical Review E*
Fedotov, S., Ihme, M., Pitsch, H.
2005; 1 (71): 1–9
- **Numerical prediction of nitrogen oxide emission using flamelet/progress variable model.**
Ihme, M., Pitsch, H.
2005
- **LES of a non-premixed flame using an extended flamelet/progress variable model.**
Ihme, M., Pitsch, H.
2005
- **Flamelet/progress variable model closure with statistically mostlikely distribution.**
Ihme, M., Pitsch, H.
2005
- **An unsteady/flamelet progress variable method for LES of nonpremixed turbulent combustion.**
Pitsch, H., Ihme, M.
2005
- **Prediction of local extinction and re-ignition effects in non-premixed turbulent combustion using a flamelet/progress variable approach.**
Ihme, M., Cha, C., M., Pitsch, H.
2005
- **An extended flamelet/progress variable method for LES of nonpremixed turbulent combustion.**
Ihme, M., Pitsch, H.
2004

- **Stochastic mixing model with power law decay of variance.** *Center for Turbulence Research Annual Research Briefs*
Fedotov, S., Ihme, M., Pitsch, H.
2003: 285–296