

Prof Xi Jiang
PhD, CEng, FIMechE

School of Engineering and Materials Science
Queen Mary University of London
Mile End Road
London E1 4NS

tel: +44 (0)20 7882 5009
email: xi.jiang@qmul.ac.uk web: www.sems.qmul.ac.uk/xi.jiang

2020

Central recirculation zone induced by the DBD plasma actuation.

Li G, Jiang X, Lei Z, Liu C, Yang J, Xu Y and Xu G. *Scientific Reports* vol. 10, (1).

Molecular dynamics simulation of soot formation of diesel combustion with oxygenated fuel addition.

Chen C and Jiang X. *Physical Chemistry Chemical Physics*. Royal Society of Chemistry (Rsc).

Design and experimental evaluation of a plasma swirler with helical shaped actuators.

Li G, Jiang X, Jiang L, Lei Z, Zhu J, Mu Y and Xu G. *Sensors and Actuators a Physical*.

Parametric and Model Uncertainties Induced by Reduced Order Chemical Mechanisms for Biogas Combustion.

M. Freitas RS, Rochinha FA, Mira D and Jiang X. *Chemical Engineering Science* 115949-115949. Elsevier Bv.

Numerical investigation of convective mixing in impure CO₂ geological storage into deep saline aquifers.

Li D and Jiang X. *International Journal of Greenhouse Gas Control* vol. 96, 103015-103015. Elsevier.

Datasets for high hydrogen content syngas fuel variability effect on combustion physicochemical properties.

Zhang K and Jiang X. *Data in Brief* vol. 29, . Elsevier.

2019

Uncertainty quantification of fuel variability effects on high hydrogen content syngas combustion.

Zhang K and Jiang X. *Fuel* vol. 257, 116111-116111. Elsevier Bv.

Effects of electrical parameters on the performance of a plasma swirler.

Li G and Jiang X. *Physica Scripta* vol. 94, (9) 095601-095601. Iop Publishing.

Transport property prediction and inhomogeneity analysis of supercritical n-Dodecane by molecular dynamics simulation.

Chen C and JIANG X. *Fuel* vol. 244, 48-60. Elsevier.

Optimisation of low energy cooling through phase variation between adjacent piezoelectric fan blades.

Hales A and Jiang X. *International Journal of Heat and Mass Transfer* vol. 139, 362-372. Elsevier.

An experimental investigation on the electrospray characteristics in a meso-scale system at different modes.

Gan Y, Li H, Jiang Z, Chen X, Luo Y, Tong Y, Shi Y and Jiang X. *Experimental Thermal and Fluid Science* vol. 106, 130-137. Elsevier.

Geometric optimisation of piezoelectric fan arrays for low energy cooling.

HALES A and JIANG X. *International Journal of Heat and Mass Transfer* vol. 137, 52-63. Elsevier.

Combustion control using a lobed swirl injector and a plasma swirler.

Li G, Jiang X, Zhu J, Yang J, Liu C, Mu Y and Xu G. *Applied Thermal Engineering* vol. 152, 92-102.

2018

Effects of N₂ and H₂S binary impurities on CO₂ geological storage in stratified formation - A sensitivity study.

Li D, Zhang H, Li Y, Xu W and JIANG X. *Applied Energy* vol. 229, 482-492. Elsevier.

Flame lift-off height control by a combined vane-plasma swirler.

Li G, Jiang X, Chen Q and Wang Z. *Journal of Physics D: Applied Physics*.

An assessment of fuel variability effect on biogas-hydrogen combustion using uncertainty quantification.

ZHANG K and JIANG X. *International Journal of Hydrogen Energy* vol. 43, 12499-12515. Elsevier.

The combustion mitigation of methane as a non-CO₂ greenhouse gas.

Jiang X, Mira D and Cluff DL. *Progress in Energy and Combustion Science* vol. 66, 176-199.

Electro-spraying and catalytic combustion characteristics of ethanol in meso-scale combustors with steel and platinum meshes.

Gan Y, Tong Y, Jiang Z, Chen X, Li H and Jiang X. *Energy Conversion and Management* vol. 164, 410-416.

A review of piezoelectric fans for low energy cooling of power electronics.

HALES A and JIANG X. *Applied Energy* vol. 215, 321-337. Elsevier.

An investigation of fuel variability effect on bio-syngas combustion using uncertainty quantification.

ZHANG K and JIANG X. *Fuel* vol. 220, 283-295. Elsevier.

2017

A numerical study of the impurity effects on CO₂ geological storage in layered formation.

Li D, He Y, Zhang H, Xu W and Jiang X. *Applied Energy* vol. 199, 107-120.

Fast Response, Highly Sensitive and Selective Mixed-Potential H₂ Sensor Based on (La, Sr)(Cr, Fe)O_{3-?} Perovskite Sensing Electrode.

Zhang H, Yi J and Jiang X. *Acs Appl Mater Interfaces* vol. 9, (20) 17218-17225.

Jet flow and premixed jet flame control by plasma swirler.

Li G, Jiang X, Zhao Y, Liu C, Chen Q, Xu G and Liu F. *Physics Letters, Section a: General, Atomic and Solid State Physics* vol. 381, (13) 1158-1162.

Large-eddy simulation of flow and combustion dynamics in a lean partially premixed swirling combustor.

Li S, Zheng Y, Zhu M, Martinez DM and Jiang X. *Journal of The Energy Institute* vol. 90, (1) 120-131.

Numerical investigation of the partitioning phenomenon of carbon dioxide and multiple impurities in deep saline aquifers.

Li D and Jiang X. *Applied Energy* vol. 185, 1411-1423.

2016

Investigation of the effect of DC electric field on a small ethanol diffusion flame.

Luo Y, Gan Y and Jiang X. *Fuel* vol. 188, 621-627.

A Large-Eddy Simulation-Linear-Eddy Model Study of Preferential Diffusion Processes in a Partially Premixed Swirling Combustor With Synthesis Gases.

Li S, Zheng Y, Mira D, Li S, Zhu M and Jiang X. *Journal of Engineering For Gas Turbines and Power* vol. 139, (3) 031501-031501.

The chemical effects of addition to methane on aromatic chemistry.

Fischer M and Jiang X. *Fuel* vol. 183, 386-395.

A study of using cosmic-ray muon radiography to detect CO₂ leakage from a primary storage into geological formations.

Zhong J and Jiang X. *Environmental Earth Sciences* vol. 75, (10).

The effects of chemical kinetic mechanisms on large eddy simulation (LES) of a nonpremixed hydrogen jet flame.

Zhou X, Jiang X and Mira Martinez D. *International Journal of Hydrogen Energy* vol. 41, (26) 11427-11440.

A coupled thermal and electrochemical study of lithium-ion battery cooled by paraffin/porous-graphite-matrix composite.

Greco A and Jiang X. *Journal of Power Sources* vol. 315, 127-139.

A case study of using cosmic ray muons to monitor supercritical CO₂ migration in geological formations.

Zhong J and Jiang X. *Applied Energy* vol. 185, 1450-1458.

A chemical kinetic modelling study of the combustion of CH₄-CO-H₂-CO₂ fuel mixtures.

Fischer M and Jiang X. *Combustion and Flame* vol. 167, 274-293.

An experimental investigation of supercritical CO₂ accidental release from a pressurized pipeline.

Li K, Zhou X, Tu R, Xie Q, Yi J and Jiang X. *The Journal of Supercritical Fluids* vol. 107, 298-306.

2015

A modelling study of the multiphase leakage flow from pressurised CO₂ pipeline.

Zhou X, Li K, Tu R, Yi J, Xie Q and Jiang X. *Journal of Hazardous Materials* vol. 306, 286-294.

A computational study of preferential diffusion and scalar transport in nonpremixed hydrogen-air flames.

Jiang J, Jiang X and Zhu M. *International Journal of Hydrogen Energy* vol. 40, (45) 15709-15722.

Nitric oxide pollutant formation in high hydrogen content (HHC) syngas flames.

Dinesh KJR, van Oijen JA, Luo KH and Jiang X. *International Journal of Hydrogen Energy* vol. 40, (39) 13621-13634.

Numerical simulations of pressure buildup and salt precipitation during carbon dioxide storage in saline aquifers.

Meng Q, Jiang X, Li D and Xie Q. *Computers & Fluids* vol. 121, 92-101.

Selected papers from the Twelfth International Conference on Combustion and Energy Utilisation (12th ICCEU).

Jiang X, Kraft M and Yan J. *Applied Energy* vol. 156, 747-748.

Numerical optimisation for model evaluation in combustion kinetics.

Fischer M and Jiang X. *Applied Energy* vol. 156, 793-803.

Numerical analyses of the effects of nitrogen on the dissolution trapping mechanism of carbon dioxide geological storage.

Li D, Jiang X, Meng Q and Xie Q. *Computers & Fluids* vol. 114, 1-11.

An investigation of the chemical kinetics of biogas combustion.

Fischer M and Jiang X. *Fuel* vol. 150, 711-720.

A comparative study of instabilities in forced reacting plumes of nonpremixed flames.

Jiang J, Jing L, Zhu M and Jiang X. *Journal of The Energy Institute* vol. 89, (3) 456-467.

An investigation of lithium-ion battery thermal management using paraffin/porous-graphite-matrix composite.

Greco A, Jiang X and Cao D. *Journal of Power Sources* vol. 278, 50-68.

2014

An assessment of chemical kinetics for bio-syngas combustion.

Fischer M and Jiang X. *Fuel* vol. 137, 293-305.

An experimental study on the leakage process of high pressure CO₂ from a pipeline transport system.

Tu R, Xie Q, Yi J, Li K, Zhou X and Jiang X. *Greenhouse Gases Science and Technology* vol. 4, (6) 777-784.

Numerical analyses of the solubility trapping of CO₂ storage in geological formations.

Meng Q and Jiang X. *Applied Energy* vol. 130, 581-591.

The leakage behavior of supercritical CO₂ flow in an experimental pipeline system.

Xie Q, Tu R, Jiang X, Li K and Zhou X. *Applied Energy* vol. 130, 574-580.

Numerical investigation of the burning characteristics of ventilation air methane in a combustion based mitigation system.

Martinez DM, Cluff DL and Jiang X. *Fuel* vol. 133, 182-193.

A numerical study of the impurity effects of nitrogen and sulfur dioxide on the solubility trapping of carbon dioxide geological storage.

Li D and Jiang X. *Applied Energy* vol. 128, 60-74.

Near-field local flame extinction of oxy-syngas non-premixed jet flames: A DNS study.

Dinesh KKJR, van Oijen JA, Luo KH and Jiang X. *Fuel* vol. 130, 189-196.

The flow and heat transfer characteristics of supercritical CO₂ leakage from a pipeline.

Li K, Zhou X, Tu R, Xie Q and Jiang X. *Energy* vol. 71, 665-672.

A theoretical and computational study of lithium-ion battery thermal management for electric vehicles using heat pipes.

Greco A, Cao D, Jiang X and Yang H. *Journal of Power Sources* vol. 257, 344-355.

Numerical assessment of subgrid scale models for scalar transport in large-eddy simulations of hydrogen-enriched fuels.

Martinez DM, Jiang X, Moulinec C and Emerson DR. *International Journal of Hydrogen Energy* vol. 39, (14) 7173-7189.

Hydrogen-enriched non-premixed jet flames: Analysis of the flame surface, flame normal, flame index and Wobbe index.

Dinesh KKJR, Jiang X and van Oijen JA. *International Journal of Hydrogen Energy* vol. 39, (12) 6753-6763.

2013

Large-eddy simulation of mixing and combustion in a premixed swirling combustor with synthesis gases.

Zheng Y, Zhu M, Martinez DM and Jiang X. *Computers & Fluids* vol. 88, 702-714.

Numerical simulations of turbulent jet flames with non-premixed combustion of hydrogen-enriched fuels.

Martinez DM, Jiang X, Moulinec C and Emerson DR. *Computers & Fluids* vol. 88, 688-701.

Modelling and monitoring of geological carbon storage: A perspective on cross-validation.

Jiang X, Hassan WAA and Gluyas J. *Applied Energy* vol. 112, 784-792.

Capturing CO₂ in flue gas from fossil fuel-fired power plants using dry regenerable alkali metal-based sorbent.

Zhao C, Chen X, Anthony EJ, Jiang X, Duan L, Wu Y, Dong W and Zhao C. *Progress in Energy and Combustion Science* vol. 39, (6) 515-534.

Numerical investigations of a hydrogen impinging flame with different finite-rate chemical kinetic mechanisms.

Martinez DM and Jiang X. *Fuel* vol. 109, 285-296.

Large-eddy simulations of unsteady hydrogen annular flames.

Martinez DM and Jiang X. *Computers & Fluids* vol. 80, 429-440.

Direct numerical simulation of non-premixed syngas burning with detailed chemistry.

Dinesh KKJR, Jiang X and van Oijen JA. *Fuel* vol. 107, 343-355.

Hydrogen-enriched non-premixed jet flames: Compositional structures with near-wall effects.

Dinesh KKJR, Jiang X and van Oijen JA. *International Journal of Hydrogen Energy* vol. 38, (12) 5150-5164.

Hydrogen-enriched nonpremixed jet flames: Effects of preferential diffusion.

Dinesh KKJR, Jiang X, van Oijen JA, Bastiaans RJM and de Goey LPH. *International Journal of Hydrogen Energy* vol. 38, (11) 4848-4863.

Large eddy simulation of fuel variability and flame dynamics of hydrogen-enriched nonpremixed flames.

Dinesh KKJR, Jiang X, Malalasekera W and Odedra A. *Fuel Processing Technology* vol. 107, 2-13.

Influence of fuel variability on the characteristics of impinging non-premixed syngas burning.

Dinesh KKJR, Jiang X, van Oijen JA, Bastiaans RJM and de Goey LPH. *Proceedings of The Combustion Institute* vol. 34, (2) 3219-3229.

Numerical investigation of the effects of fuel variability on the dynamics of syngas impinging jet flames.

Martinez DM, Jiang X, Moulinec C and Emerson DR. *Fuel* vol. 103, 646-662.

2012

Upscaling and its application in numerical simulation of long-term CO₂ storage.

Hassan WAA and Jiang X. *Greenhouse Gases Science and Technology* vol. 2, (6) 408-418.

Combustion characteristics of H₂/N₂ and H₂/CO syngas nonpremixed flames.

Dinesh KKJR, Jiang X, Kirkpatrick MP and Malalasekera W. *International Journal of Hydrogen Energy* vol. 37, (21) 16186-16200.

Analysis of Impinging Wall Effects on Hydrogen Non-Premixed Flame.

Dinesh KKJR, Jiang X and van Oijen JA. *Combustion Science and Technology* vol. 184, (9) 1244-1268.

Numerical simulation of hydrogen impinging jet flame using flamelet generated manifold reduction.

Dinesh KKJR, Jiang X and van Oijen JA. *International Journal of Hydrogen Energy* vol. 37, (5) 4502-4515.

2011

A review of physical modelling and numerical simulation of long-term geological storage of CO₂.

Jiang X. *Applied Energy* vol. 88, (11) 3557-3566.

Large Eddy Simulation of Diesel Fuel Injection and Mixing in a HSDI Engine.

Jagus K and Jiang X. *Flow, Turbulence and Combustion* vol. 87, (2-3) 473-491.

Swirling and Impinging Effects in an Annular Nonpremixed Jet Flame.

Jiang X, Luo KH, de Goey LPH, Bastiaans RJM and van Oijen JA. *Flow, Turbulence and Combustion* vol. 86, (1) 63-88.

2010

Physical modelling and advanced simulations of gas-liquid two-phase jet flows in atomization and sprays.

Jiang X, Siamas GA, Jagus K and Karayiannis TG. *Progress in Energy and Combustion Science* vol. 36, (2) 131-167.

2009

Assessment of large-eddy simulation feasibility in modelling the unsteady diesel fuel injection and mixing in a highspeed direct-injection engine.

Jagus K, Jiang X, Dober G, Greeves G, Milanovic N and Zhao H. *Proceedings of The Institution of Mechanical Engineers Part D Journal of Automobile Engineering* vol. 223, (8) 1033-1048.

Numerical investigation of a perturbed swirling annular two-phase jet.

Siamas GA, Jiang X and Wrobel LC. *International Journal of Heat and Fluid Flow* vol. 30, (3) 481-493.

Dynamics of annular gas-liquid two-phase swirling jets.

Siamas GA, Jiang X and Wrobel LC. *International Journal of Multiphase Flow* vol. 35, (5) 450-467.

Direct numerical simulation of the near-field dynamics of annular gas-liquid two-phase jets.

Siamas GA, Jiang X and Wrobel LC. *Physics of Fluids* vol. 21, (4).

2008

Analytical Equilibrium Swirling Inflow Conditions for Computational Fluid Dynamics.

Jiang X, Siamas GA and Wrobel LC. *Aiaa Journal* vol. 46, (4) 1015-1019.

A numerical study of an annular liquid jet in a compressible gas medium.

Siamas GA, Jiang X and Wrobel LC. *International Journal of Multiphase Flow* vol. 34, (4) 393-407.

2007

Analysis of Controlled Auto-Ignition/HCCI Combustion in a Direct Injection Gasoline Engine with Single and Split Fuel Injections.

Cao L, Zhao* H and Jiang X. *Combustion Science and Technology* vol. 180, (1) 176-205.

Direct numerical simulation of a liquid sheet in a compressible gas stream in axisymmetric and planar configurations.

Siamas GA and Jiang X. *Theoretical and Computational Fluid Dynamics* vol. 21, (6) 447-471.

Direct Numerical Simulation of a Non-Premixed Impinging Jet Flame.

Jiang X, Zhao H and Luo KH. *Journal of Heat Transfer* vol. 129, (8) 951-957.

Direct computation of perturbed impinging hot jets.

Jiang X, Zhao H and Luo KH. *Computers & Fluids* vol. 36, (2) 259-272.

A COMPARATIVE RANS/LES STUDY OF TRANSIENT GAS JETS AND SPRAYS UNDER DIESEL CONDITIONS.

Valentino M, Jiang X and Zhao H. *Atomization and Sprays* vol. 17, (5) 451-472.

Direct Computation of an Annular Liquid Jet.

Jiang X and Siamas GA. *Journal of Algorithms & Computational Technology* vol. 1, (1) 103-126.

2006

Simulation of the air/fuel mixing of an HSDI diesel engine. Part 1: A new dense spray vapour coupling submodel.

Sterno N, Greeves G, Tullis S, Jiang X and Zhao H. *Proceedings of The Institution of Mechanical Engineers Part D Journal of Automobile Engineering* vol. 220, (12) 1793-1805.

Numerical simulations of the flow and sound fields of a heated axisymmetric pulsating jet.

Jiang X, Zhao H and Cao L. *Computers & Mathematics With Applications* vol. 51, (3-4) 643-660.

Numerical Investigation Into Effect of Fuel Injection Timing on CAI/HCCI Combustion in a Four-Stroke GDI Engine.

Cao L, Zhao H, Jiang X and Kalian N. *International Journal For Computational Methods in Engineering Science and Mechanics* vol. 7, (1) 41-57.

2005

Mixture formation and controlled auto-ignition combustion in four-stroke gasoline engines with port and direct fuel injections.

Cao L, Zhao H, Jiang X and Kalian N. *International Journal of Engine Research* vol. 6, (4) 311-329.

Understanding the influence of valve timings on controlled autoignition combustion in a four-stroke port fuel injection engine.

Cao L, Zhao H, Jiang X and Kalian N. *Proceedings of The Institution of Mechanical Engineers Part D Journal of Automobile Engineering* vol. 219, (6) 807-823.

2004

Numerical simulations of buoyant reactive jets with sidewall effects.

Zhang H, Jiang X, Wang W, Yang Y, Xu L and Fan W. *Chinese Science Bulletin* vol. 49, (19) 2105-2109.

DIRECT COMPUTATION OF A HEATED AXISYMMETRIC PULSATING JET.

Jiang X, Zhao H and Cao L. *Numerical Heat Transfer Part a Applications* vol. 46, (10) 957-979.

Sound Generation by Vortex Pairing in Subsonic Axisymmetric Jets.

Jiang X, Avital EJ and Luo KH. *Aiaa Journal* vol. 42, (2).

Direct computation and aeroacoustic modelling of a subsonic axisymmetric jet.

Jiang X, Avital EJ and Luo KH. *Journal of Sound and Vibration* vol. 270, (3) 525-538.

2003

Dynamics and structure of transitional buoyant jet diffusion flames with side-wall effects.

Jiang X and Luo KH. *Combustion and Flame* vol. 133, (1-2) 29-45.

2001

Direct Numerical Simulation of Transitional Noncircular Buoyant Reactive Jets.

Jiang X and Luo KH. *Theoretical and Computational Fluid Dynamics* vol. 15, (3) 183-198.

Direct numerical simulation of the near field dynamics of a rectangular reactive plume.

Jiang X and Luo KH. *International Journal of Heat and Fluid Flow* vol. 22, (6) 633-642.

Mixing and Entrainment of Transitional Non-Circular Buoyant Reactive Plumes.

Jiang X and Luo KH. *Flow, Turbulence and Combustion* vol. 67, (1) 57-79.

Spatial DNS of flow transition of a rectangular buoyant reacting free-jet.

Jiang X and Luo KH. *Journal of Turbulence* vol. 2,.

2000

Direct Numerical Simulation of the Puffing Phenomenon of an Axisymmetric Thermal Plume.

Jiang X and Luo KH. *Theoretical and Computational Fluid Dynamics* vol. 14, (1) 55-74.

Spatial Direct Numerical Simulation of the Large Vortical Structures in Forced Plumes.

Jiang X and Luo KH. *Flow, Turbulence and Combustion* vol. 64, (1) 43-69.