

Professor Hongming Xu CEng, FIMechE, FHEA, FSAE

Chair in Energy and Automotive Engineering
Head of Vehicle and Engine Technology Centre

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About

Hongming Xu is Professor of Energy and Automotive Engineering. He has 6 years of industrial experience with Jaguar Land Rover, Premier Automotive Group of Ford. Formerly member of Ford HCCI Global Steering Committee, project manager and technical leader of the UK Foresight Vehicle LINK projects CHARGE and CHASE between 2002 and 2007.

He has 250 journal and conference publications in engine flow, combustion, emissions and transient operation control involving both experimental and modelling studies.

Qualifications

- PhD & DIC, in Mechanical Engineering (Internal Combustion Engines), Imperial College, University of London, 1995
- MSc (Eng), in Mechanical Engineering (Internal Combustion Engines), Anhui Institute of Technology, Hefei, 1984
- BSc (Eng), Mechanical Engineering (Internal Combustion Engines), Hefei University of Technology, Hefei, 1982

Biography

Professor Hongming Xu obtained BEng and MEng from Hefei University of Technology in 1982 and 1984 respectively where he worked subsequently as lecturer until 1990.

He obtained PhD from Imperial College London in 1995 and then worked there as Research Fellow and Senior Research Fellow. He moved to Jaguar Cars Ford Premier Automotive Group in 2000, where he was a Project Engineer (2000-2001), Team Leader (2002-2004), and Principal Technical Specialist until he joined the University of Birmingham in 2005 as Reader in Automotive Engineering.

He was appointed to the Chair of Energy and Automotive Engineering in 2009.

Teaching

Teaching Programmes

- Automotive Design Process
- Powertrain Engineering
- Turbomachinery and Complex Flow
- Sustainable Energy

Postgraduate supervision

Studentship available, applications welcome

Previous PhD students

- Sathaporn Chuepeng, "Quantitative Impact on Engine Performance and Emissions of High Proportion Biodiesel Blends and the Required Engine Control Strategy," 2008 (joint supervision)
- Jacek Misztal, "Study of Homogenous Charge Compression Ignition (HCCI) Combustion and Emission Characteristics in a Multi-cylinder Engine," 2009
- Rizalman Mamat, "Performance and Emission Characteristics of an Automotive Diesel Engine Using Biodiesel Fuel with the Influence of Air Intake Variables," 2009
- Pawel Luszcz, "Combustion Diagnostics in Homogeneous Charge Compression Ignition Optical and Thermal Single Cylinder Engines," 2009
- Marcin Frackowiak, "Modelling and Diagnostic Study of Flow in an Optical Engine with Negative Valve Overlapping for Homogeneous Charge Compression Ignition," 2009
- George Constandinides, "Current Thermal Management and control of a Homogeneous Charge Compression Ignition (HCCI) Engine," 2010/4
- Dale Turner, "The Combustion And Emissions Performance Of Fuel Blends In Modern Combustion Systems," 2010
- Jun Zhang, "Particle Matter Emission Control and Related Issues for Diesel Engines," 2011
- Richie Daniel, "Combustion and Emissions Performance of Oxygenated Fuels in a Modern Spark ignition Engine," 2012
- Yanfei Li, "Experimental Study on Spray and Combustion Characteristics of Diesel-like Fuels," 2012

- He Ma, "Control Oriented Engine Modelling and Engine Multiple-objective Optimal Feedback Control," 2013
- Fan Zhang, "Spray, Combustion and Emission Characteristics of dieseline Fuel," 2013
- Haiying Li, "CFD Modelling Study of Spray and Combustion of Gasoline and DMF in Direct Gasoline Engines," 2013
- Chongming Wang, "Combustion and emissions of a direct injection gasoline engine using biofuels," 2014
- Changzhao Jiang, "Optical Investigation on the spray and combustion characteristics of the furan bio-fuels," 2014
- Dai Liu, "the combustion and emissions using alternative fuels in an automotive diesel engine under steady and start conditions," 2014

Current PhD students

- Powen Du, Modeling of IC Engine Flow and Combustion
- Daling Jing, Optical and modelling study of Fuel Sprays
- Cheng Tan, Intelligent Control of Engine Transients
- Jianyi Tian, Diesel Engine Gaseous Emissions and Particles
- Thomas Lattimore, SI Engine Combustion and Emissions
- Yasser Qahtani, PPCI Combustion
- Soheil Zeraati Rezaei, New Combustion Mode for Hybrid Vehicles
- Ziman Wang (joint), Fuel Spray and Injection Process
- Olalere Rafiu Kayode - Advanced GD engines
- Tawfik Badawy – Optical Diagnostics of Flow and Combustion
- Yunfan Zhang – Model Based Diesel Engine Control

Post-Doctoral Research Fellows

- Dr Arumugam Ramadhas - Cold start of diesel engines (Marie Curie Fellow)
- Dr He Ma – Real-time model base next generation engine management system
- Dr Mohammadreza Anbari Attar– Combustion and emissions high efficient engines with boosting
- Dr Dhananjay Kumar Srivastava – GDI engine deposits
- Several positions open - applications welcome

Research

Professor Xu has research experience in flow/turbulence, diesel/gasoline spray, mixture preparation, ignition, premixed/diffusion combustion, new combustion mode (HCCI/PCCI/dieseline), emission formation/control, biodiesels, engine modelling, and operation control. He also has experience in turbomachinery/turbocharging, engine design and various advanced engine technologies.

Previous major projects as PI (2002-2011): £6 millions

- Controlled Homogeneous Autoignition Reformed Gas Engine (CHARGE), DTI, 2002 - 2004
- Controlled Homogeneous Autoignition Supercharged Engine (CHASE), DTI, 2004 - 2007
- Combustion, performance & emissions of biodiesels (COPE), JLR, 2007 - 2008
- Flex-diesel Engines with Sustainable Bio-fuels for Clean and Efficient On- and Off-Road Vehicle Engines (SERVE), TSB, 2007- 2010
- Impact of DMF on Engine Performance and Emissions as a New Generation of Sustainable Biofuel, EPSRC, 2008 - 2011
- HCCI engine technology research, JLR, 2007 - 2012
- Thermal Management, JLR, 2007- 2012
- Continuous Oxidation using NO2 Combustion for Exhaust Particulate Treatment (CONCEPT), JLR, Nov 2007-2009
- Combustion and emissions of ethanol in a direct injection engine, Shell, 2008 - 2009
- Combustion mechanism of furan fuels, Royal Society, 2011 - 2013

Ongoing major projects: external funding £2 million

- Biodiesel engine cold start, 2012 - 2014
- Effect of fuel properties on GDI engines, 2012 - 2015
- Next generation of GDI engines with boosting, 2012-2015
- New control methodology for the next generation of engine management systems, 2013 -2016
- X-in-the-loop diesel engine control, 2013 - 2016
- Study of diesel particulate matter emissions, 2013 – 2018
- Hybrid vehicle development, 2015-2017

Current main research areas include:

1. [modeling engine air flow and combustion \(/Documents/college-eps/mechanical/staff/xu/xu-gdi-engines.pdf\)](/Documents/college-eps/mechanical/staff/xu/xu-gdi-engines.pdf)
2. [fuel sprays and injection process \(/Documents/college-eps/mechanical/staff/xu/xu-biofuel-spray.pdf\)](/Documents/college-eps/mechanical/staff/xu/xu-biofuel-spray.pdf)
3. [optical studies of mixture preparation and combustion \(/Documents/college-eps/mechanical/staff/xu/xu-optical-diagnostics.pdf\)](/Documents/college-eps/mechanical/staff/xu/xu-optical-diagnostics.pdf)
4. [fuel properties and GDI technology \(/Documents/college-eps/mechanical/staff/xu/xu-si-engine.pdf\)](/Documents/college-eps/mechanical/staff/xu/xu-si-engine.pdf)
5. [biodiesels and flex fuels \(/Documents/college-eps/mechanical/staff/xu/xu-biodiesel-blends.pdf\)](/Documents/college-eps/mechanical/staff/xu/xu-biodiesel-blends.pdf)
6. [new combustion mode \(HCCI/PCCI\) \(/Documents/college-eps/mechanical/staff/xu/xu-puma-engine.pdf\)](/Documents/college-eps/mechanical/staff/xu/xu-puma-engine.pdf)
7. [model based intelligent engine control \(/Documents/college-eps/mechanical/staff/xu/xu-jaguar-engine.pdf\)](/Documents/college-eps/mechanical/staff/xu/xu-jaguar-engine.pdf)
8. [transient engine performance of diesel and biodiesel blends at cold start \(/Documents/college-eps/mechanical/staff/xu/xu-ccold-test-cell.pdf\)](/Documents/college-eps/mechanical/staff/xu/xu-ccold-test-cell.pdf)

One of the special areas of research is advanced optical/laser diagnostics of flow and combustion, using laser Doppler anemometry (LDA), phase Doppler particle analyzer (PDPA), planar laser-induced fluorescence (PLIF), laser-induced incandescence (LII), particle image velocimetry (PIV) and ultra-high speed imaging techniques.

Other activities

- Privilege Professor of Tsinghua University
- Visiting professor of Beijing Institute of Technology, Hefei University of Technology, Zhejiang Automotive Institute (Geely Motor Company)
- Member of SAE International Advanced Power Sources Committee, and Combustion and Fuels Committee.
- Alternate member of executive Committee of IEA (International Energy Agency) Combustion Task Leaders

Publications

Publications (2000- 2014)

Book chapters

- G. Tian, R. Daniel and H.M Xu, Chapter "DMF – A New Biofuel Candidate", in *Biofuel / Book 2*, ISBN 978-953-307-478-8, 2011
- Y. Li, G. Tian and H.M. Xu, "Application of Biodiesel in Automotive Diesel Engines" in *Biodiesel - Feedstocks, Production and Applications*, ISBN 978-953-51-0910-5, Hard cover, 487 pages, Publisher: InTech 2013
- Zhi Wang, S Shuai, H.M.Xu "Internal Combustion Engine Simulation: State of the Art and Future Development," *Handbook of Clean Energy Systems*, Wiley, 2014, in press
- H.M. Xu and C. Wang, "A Comprehensive Review of 2,5-Dimethylfuran as Biofuel Candidate" *Biofuels from Lignocellulosic Biomass - Innovations beyond Bioethanol*. Wiley, in press

2014

Refereed Journal Papers

- H.M.Xu, C. Wang, X. Ma, A.Sarangi, A.Weall, J. Krueger-Venus, "Fuel Injector Deposits in Direct-Injection Spark-Ignition Engines," *Progress in Energy and Combustion Science*, in press.
- A. Ramadhas Dai Liu, J. Tian, H.M. Xu, "Cold Start of Diesel Engines", *International Journal of Green Energy*, 2014
- Z. Wang, M. Wyszynski, H.M.Xu, "Fuel injection and combustion study by the combination of mass flow rate and heat release rate with single and multiple injection strategies", *Fuel Processing Technology*, accepted, Nov. 2014,
- Ma, H. ; Xu, H. ; Wang, J. ; Schnier, T. "Model-based Multi-objective Evolutionary Algorithm Optimization for HCCI Engine," *Vehicular Technology, IEEE Transactions*, Issue: 99, 2014 ISSN : 0018-9545 DOI:10.1109/TVT.2014.2362954
- Z. Wang, M. Wyszynski, H.M.Xu, "Experimental study on diesel fuel injection characteristics under cold start conditions with single and split injection strategies," *Fuel Processing Technology*, accepted, Oct 2014. doi:10.1016/j.fuproc.2014.10.003
- C. Wang, H.M.Xu, J.Herreros1, J. Wang, R. Cracknell, "Impact of Fuel and Injection System on Particle Emissions from a GDI Engine," *Applied Energy*, Volume 132, 1 November 2014, Pages 178–191
- Dearn, K., Xu, J., Ding, H., Xu, H. et al., "An Investigation into the Characteristics of DISI Injector Deposits Using Advanced Analytical Methods," *SAE Int. J. Fuels Lubr.* 7(3):771-782, 2014, doi:10.4271/2014-01-2722
- Zhang, F., Zeraati Rezaei, S., Xu, H., and Shuai, S., "Experimental Investigation of Different Blends of Diesel and Gasoline (Dieseline) in a CI Engine," *SAE Int. J. Engines* 7(4):1920-1930, 2014, doi:10.4271/2014-01-2686.
- Tian, J., Xu, H., Arumugam Sakunthalai, R., Liu, D. et al., "Low Ambient Temperature Effects on a Modern Turbocharged Diesel engine running in a Driving Cycle," *SAE Int. J. Fuels Lubr.* 7(3):726-736, 2014, doi:10.4271/2014-01-2713.
- Xiao Ma, Zhi Wang, Changzhao Jiang, Yizhou Jiang, Hongming Xu, Jianxin Wang. An optical study of in-cylinder CH₂O and OH chemiluminescence in flame-induced reaction front propagation using high speed imaging. *Fuel*, Volume 134, 15 October 2014, Pages 603-610
- X.Ma, J Zhang HM Xu, Particulate Characteristics of a Light Duty Diesel Engine with Alternative Fuel Blends" in press, *Proc. IMechE, Part D: Journal of Automobile Engineering*
- Ma, X., Zheng, L., Li, Y., Wang, Z. Xu, H.M., "High Speed Imaging Study on the Spray Characteristics of Dieseline at Elevated Temperatures and Back Pressures," *SAE Int. J. Fuels Lubr.* 7(1):159-166, 2014, doi:10.4271/2014-01-1415.
- Yufu Xu, XiaojingZhen, Xianguo Hu, Karl D.Dearn, Hongming Xu, Effect of catalytic esterification on the friction and wear performance of bio-oil, *Wear*, 311(2014)93–100
- WANG, CHONGMING; Xu, Hongming; Herreros, Jose; Lattimore, Thomas; Shuai, Fuel effect on Particulate Matter Composition and Soot Oxidation in a DISI Engine, *Energy & Fuels*, 2014, 28 (3), pp 2003–2012, DOI: 10.1021/ef402234z
- X. Ma H.M. Xu, Ultra-High Speed Imaging and OH-LIF Study of DMF and MF, Combustion in a DISI Optical Engine, *Applied Energy*, Volume 122, 1 June 2014, Pages 247–260
- L. Wei, L. Tong, J. Xu, Z. Wang, H. Jin, M. Yao, Z. Zheng, H. Li, and H.M. Xu*, "Primary Combustion Intermediates in Low-pressure Premixed Laminar 2,5-Dimethylfuran/Oxygen/Argon Flames," *Combustion Science and Technology*, *Combustion Science and Technology*, Volume 186, Issue 3, pages 355-376,2014, DOI:10.1080/00102202.2013.857666

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- Tan, C., Xu, H., Ma, H., Tian, J. et al., "A Study of Methodology for the Investigation of Engine Transient Performance," *SAE Technical Paper 2014-01-2714*, 2014, doi:10.4271/2014-01-2714.
- Jing, D., Xu, H., Shuai, S., Wang, Z. et al., "A Turbulence and Cavitation Induced Breakup Model for Fuel Spray Modeling," *SAE Technical Paper 2014-01-2737*, 2014, doi:10.4271/2014-01-2737.
- Wang, B., Shuai, S., Yang, H., Wang, Z. et al., "Experimental Study of Multiple Premixed Compression Ignition Engine Fueled with Heavy Naphtha for High Efficiency and Low Emissions," *SAE Technical Paper 2014-01-2678*, 2014, doi:10.4271/2014-01-2678.
- Arumugam Sakunthalai, R., Xu, H., Liu, D., Tian, J. et al., "Impact of Cold Ambient Conditions on Cold Start and Idle Emissions from Diesel Engines," *SAE Technical Paper 2014-01-2715*, 2014, doi:10.4271/2014-01-2715.
- Liu, D., Xu, H., Arumugam Sakunthalai, R., and Tian, J., "Investigation on the Performance of Diesel Oxidation Catalyst during Cold Start at Low Temperature Conditions," *SAE Technical Paper 2014-01-2712*, 2014, doi:10.4271/2014-01-2712.
- Ma, H., Xu, H., Wang, J., and Tan, C., "Investigation on the Self-Stabilization Feature of HCCI Combustion," *SAE Technical Paper 2014-01-2663*, 2014, doi:10.4271/2014-01-2663.
- Li, Y., Guo, H., Wang, J., and Xu, H., "The Comparative Study of Gasoline and n-butanol on Spray Characteristics," *SAE Technical Paper 2014-01-2754*, 2014, doi:10.4271/2014-01-2754.
- Ma, X., Qi, Y., Wang, Z., Xu, H. M., "An Experimental Study of EGR-Controlled Stoichiometric Dual-fuel Compression Ignition (SDCI) Combustion," *SAE Technical*

- Li, Y., Guo, H., Ma, X., Wang, J. H.M. Xu., "Experimental Study of Effect of Nozzle Diameter on Near-Field Spray Behavior of Diesel Sprays in Non-Evaporating Conditions," SAE Technical Paper 2014-01-1405, 2014, doi:10.4271/2014-01-1405.
- Liu, D., Xu, H., and Arumugam Sakunthalai, R., "Effects of Biodiesel Feedstock on the Emissions from a Modern Light Duty Engine," SAE Technical Paper 2014-01-1394, 2014.
- Li, Y., Guo, H., Ma, X., Wang, J. H.M. Xu., "Experimental Study of Effect of Nozzle Diameter on Near-Field Spray Behavior of Diesel Sprays in Non-Evaporating Conditions," SAE Technical Paper 2014-01-1405, 2014, doi:10.4271/2014-01-1405.
- Tan, C., Xu, H., Ma, H., and Ghafourian, A., "Investigation of VVT and spark timing on combustion and particle emission from a GDI Engine during transient operation," SAE Technical Paper 2014-01-1370, 2014.
- Tu, P., Jiang, C., Ding, H., Li, C. et al., "Investigation on the Spray Characteristics of DMF- Isooctane Blends using PDPA," SAE Technical Paper 2014-01-1408, 2014, doi:10.4271/2014-01-1408.

2013

Refereed Journal Papers

- Xiao Ma †, Changzhao Jiang †, Hongming Xu *†‡, Shijin Shuai ‡, and Haichun Ding Laminar Burning Characteristics of 2-Methylfuran Compared with 2,5-Dimethylfuran and Isooctane, *Energy & Fuels*, 2013, 27 (10), pp 6212–6221
- Yang, Hongqiang; Shuai, Shijin; Wang, Zhi; Performance of straight-run naphtha single-and two-stage combustion modes from low to high load, *INTERNATIONAL JOURNAL OF ENGINE RESEARCH* v: 14 - 5 pp: 469-478, OCT 2013
- X. Ma, C Jiang; H.,M.Xu*, H. Ding; S. Shuai, "Laminar burning characteristics of 2-methylfuran and isooctane blend fuels", *Fuel*, Volume 116, 15 January 2014, Pages 281–291
- E. Hu, X. Hu, T. Liu, R. Song, K. Dearn, H.M. Xu, "Effect of TiF3 catalyst on the tribological properties of carbon black-contaminated engine oils," *Wear*, Vol. 305, Issues 1–2, 30 July 2013, pp.166–176.
- X. Ma, F. Zhang, H.M. Xu*, S. Shuai, "Throttleless and EGR-controlled Stoichiometric Combustion in a Diesel-Gasoline Dual-fuel Compression Ignition Engine," *Fuel*, Volume 115 – Jan 1, 2014.
- R. Daniel, H.M. Xu*, C. Wang, G. Tian and D. Richardson, "Gaseous and Particulate Matter Emissions of Oxygenated Fuel Blends using Dual-Injection compared to Direct-Injection in a SI Engine", *Applied Energy*, Volume 105, May 2013, Pages 252–261
- S. Rezaeia, F.Zhang, H.M. Xu*, A. Ghafouriana, J. Herreros, S. Shuai, "Investigation of two-stage split-injection strategies for a Dieseline fuelled PPCI engine," *Fuel*, Volume 107, pp 299-308, May 2013
- J. Zhang, X. Ma, H.M. Xu*, P. Price, and S. Shuai, "Non-volatile particle characteristics of a light-duty diesel engine with pilot injections and exhaust gas recirculation Proc.IMechE, Part D: J. of Automobile Engineering 0954407013480454, March 25, 2013 as doi:10.1177/0954407013480454
- Tian, J., Xu*, H., Ghafourian, A., Liu, D. et al., "Transient Emissions Characteristics of a Turbocharged Engine Fuelled by Biodiesel Blends," *SAE Int. J. Fuels Lubr.* 6(2):2013, doi:10.4271/2013-01-1302.
- Tan, C., Xu*, H., Shuai, S., Ghafourian, A. et al., "Investigation on Transient Emissions of a Turbocharged Diesel Engine Fuelled by HVO Blends," *SAE Int. J. Engines* 6(2):2013, doi:10.4271/2013-01-1307.
- Liu, D., Xu*, H., Tian, J., Tan, C. et al., "Cold and Warm Start Characteristics using HVO and RME Blends in a V6 Diesel Engine," *SAE Int. J. Fuels Lubr.* 6(2):2013, doi:10.4271/2013-01-1306.
- Chongming Wang, Hongming Xu*, Ritchie Daniel; Akbar Ghafourian, JoseM Herreros, Shijin Shuai, Xiao Ma, "Combustion Characteristics and Emissions of 2-Methylfuran Compared to 2,5-Dimethylfuran, Gasoline and Ethanol in a DISI Engine, " *Fuel*, Volume 103, January 2013, Pages 200–211.
- H. Yang, S. Shuai, Z. Wang, J. Wang, H.M. Xu , "New premixed compression ignition concept for direct injection IC engines fueled with straight-run naphtha," *Energy Conversion and Management*, Volume 68, April 2013, Pages 161–168
- Yang H, Shuai S, Wang Z, Wang J, Xu H. Performance of straight-run naphtha single- and two-stage combustion modes from low to high load. *International J of Engine Research* 2013; 14(5): 469-478.
- R. Daniel, H.M. Xu*, C. Wang, G. Tian and D. Richardson, "Gaseous and Particulate Matter Emissions of Oxygenated Fuel Blends using Dual-Injection compared to Direct-Injection in a SI Engine", *Applied Energy*, Volume 105, May 2013, Pages 252–261
- Y. Yang, J.G. Brammer, M. Ouadi, J. Samanya, A. Hornung, H.M. Xu, Y. Li, "Characterisation of waste derived intermediate pyrolysis oils for use as diesel engine fuels," *Fuel*, Volume 103, January 2013, Pages 247–257.

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- Wang, B., Yang, H., Shuai, S., Wang, Z. He X, Xu. H.M., "Numerical Resolution of Multiple Premixed Compression Ignition (MPCI) Mode and Partially Premixed Compression Ignition (PPCI) Mode for Low Octane Gasoline," SAE Technical Paper 2013-01-2631, 2013, doi:10.4271/2013-01-2631.
- Liu, D., Ghafourian, A., and Xu, H., "Phenomenology of EGR in a Light Duty Diesel Engine Fuelled with Hydrogenated Vegetable Oil (HVO), Used Vegetable Oil Methyl Ester (UVOME) and Their Blends," SAE Technical Paper 2013-01-1688, 2013, doi:10.4271/2013-01-1688.
- Li, H., li, C., Ma, X., TU, P. et al., "Numerical Study of DMF and Gasoline Spray and Mixture Preparation in a GDI Engine," SAE Technical Paper 2013-01-1592, 2013, doi:10.4271/2013-01-1592.
- Wang, C., Xu, H., and Lattimore, T., "Impacts of Low-Level 2-Methylfuran Content in Gasoline on DISI Engine Combustion Behavior and Emissions," SAE Technical Paper 2013-01-1317, 2013, doi:10.4271/2013-01-1317.
- Fennell, D., Herreros, J., Tsolakis, A., Xu, H. et al., "GDI Engine Performance and Emissions with Reformed Exhaust Gas Recirculation (REGR)," SAE Technical Paper 2013-01-0537, 2013, doi:10.4271/2013-01-0537.

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- R. Daniel, L. Wei, C. Wang, H.M. Xu* and M. L. Wyszynski, "Speciation of Hydrocarbon and Carbonyl Emissions of 2,5-Dimethylfuran in a DISI Engine," *Energy & Fuels*, *Energy Fuels*, 2012, 26 (11), pp 6661–6668. DOI: 10.1021/ef301236f
- L. Wei, Lixia; Z. Li, L. Tong, Z. Wang, H. Jin, M. Yao, Z. Zheng, C. Wang, H.M. Xu*, "Primary Combustion Intermediates in Lean and Rich Low-pressure premixed Laminar 2-Methylfuran/Oxygen/Argon Flames," *Energy Fuels*, 2012, 26 (11), pp 6651–6660
- H.M. Xu, "Present and Future of Premixed Compression Ignition Engines," *Journal of Automotive Safety and Energy*, 2012, Vol. 3 Issue (3): 185-199.
- Xianguo Hu, Karl Dearn, and Hongming Xu, "On the Fundamental Lubricity of 2, 5-Dimethylfuran as a Synthetic Engine Fuel", *Journal of Tribology International*, TRIBINT-D-11-00306R2, 2012 **Volume 55** (<http://www.sciencedirect.com/science/journal/0301679X/55/supp/C>), November 2012, Pages 119–125
- X. Wu, Q. Li, J. Fu, C. Tang, Z. Huang, R. Daniel, G. Tian, H.M. Xu. "Laminar burning characteristics of 2,5-dimethylfuran and iso-octane blend at elevated temperatures and pressures," *Fuel*, **Volume 95** (<http://www.sciencedirect.com/science/journal/00162361/95/supp/C>), May 2012, Pages 234–240
- Jihong Wang; Hao Sun; Hongming Xu Feasibility study on recovering exhaust energy from a vehicle engine system by a scroll expander **Advanced Intelligent Mechatronics (AIM), 2012 IEEE/ASME International Conference on** (<http://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=6257544>), 11-14 July 2012
- R. Daniel, L. Wei, C. Wang, H.M. Xu* and M. L. Wyszynski, "Speciation of Hydrocarbon and Carbonyl Emissions of 2,5-Dimethylfuran in a DISI Engine," *Energy &*

- Eslami, F.; Wyszynski, M. L.; Tsolakis, A.; Xu, H.; Norouzi, S.; Dearn, K., Experimental investigation on lubricity of 2,5-dimethylfuran blends. *Combustion Engines - Silniki Spalinowe*, ISSN 0138-0346 2012, XLXI, (1/2012 (148)), 3-10.
- Ritchie Daniel, Hongming Xu*, Chongming Wang, Guohong Tian and Dave Richardson, "Combustion Performance of 2,5-Dimethylfuran Blends using Dual-Injection compared to Direct-Injection in a SI Engine," *Applied Energy*, **Volume 98** (<http://www.sciencedirect.com/science/journal/03062619/98>), Pages 59–68, 2012.
- Ritchie Daniel, Chongming Wang, Hongming Xu*, Guohong Tian, Dave Richardson. "Dual-Injection as a Knock Mitigation Strategy using pure Ethanol and Methanol", SAE Paper 2012-01-1152, *International Journal of Fuels and Lubricants*, 2012
- Enzhu Hu, Xianguo Hu, Xiangyang Wang, Yufu Xu, Karl Dearn, Hongming Xu, "On the Fundamental Lubricity of 2, 5-Dimethylfuran as a Synthetic Engine Fuel", *Journal of Tribology International*, **Volume 55** (<http://www.sciencedirect.com/science/journal/0301679X/55>), November 2012, Pages 119–125
- Ritchie Daniel, Chongming Wang, Hongming Xu*, Guohong Tian. "Effects of Combustion Phasing, Injection Timing, Relative Air-Fuel Ratio and Variable Valve Timing on SI Engine Performance and Emissions using 2,5-Dimethylfuran", SAE Paper 2012-01-1285, *International Journal of Fuels and Lubricants*, 2012
- Wu, X., Lia, Q., Fua, J., Tang, C., Huang, Z., Daniel, R., Tian, R. and Xu, H., Laminar Burning Characteristics of 2,5-Dimethylfuran and Iso-octane Blend at Elevated Temperatures and Pressures. *Fuel*, 2012. 95: p. 234-240
- Ritchie Daniel, Guohong Tian, Hongming Xu*, Shijin Shuai, "Ignition Timing Sensitivities of Oxygenated Biofuels Compared to Gasoline in a Direct-Injection SI Engine," *Fuel* **Volume 99** (<http://www.sciencedirect.com/science/journal/00162361/99>), 2012, Pages 72–82, 2012.

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- Xiao Ma, Changzhao Jiang, Hongming Xu, Steve Richardson. "In-cylinder Optical Study on Spray and Combustion of DMF and DMF-Gasoline Blend Fuel", SAE Paper 2012-01-1235.
- Changzhao Jiang, Xiao Ma, Hongming Xu, Steve Richardson. "An Optical Study of DMF and Ethanol Combustion under Dual-Injection Strategy", SAE Paper 2012-01-1237.
- Fan Zhang, Hongming Xu, Soheil Zeraati Rezaei, Gautam Kalghatgi, Shi-Jin Shuai. "Characteristics of Dieseline fuelled Partially-Premixed Compression Ignition Engine and the Comparison to Conventional Diesel", SAE Paper 2012-01-1138.
- Ritchie Daniel, Chongming Wang, Hongming Xu, Guohong Tian. "Split-Injection Strategies at Wide Open Throttle using Gasoline, Ethanol and 2,5-Dimethylfuran in a Direct-Injection SI Engine", SAE Paper 2012-01-0403.
- Chongming Wang, Ritchie Daniel, Xiao Ma, Hongming Xu. "Comparison of Gasoline, Bio-ethanol and 2,5-Dimethylfuran in a DISI Engine using the Miller cycle with Late Inlet Valve Closure Timing", SAE Paper 2012-01-1147.
- Chongming Wang; Ritchie Daniel, Hongming. "Research of the Atkinson Cycle in the Spark Ignition engine", SAE Paper 2012-01-0390.
- He Ma, Hongming Xu, Thorsten Schnier, Jihong Wang, Guohong Tian. "A Real-time Control Oriented HCCI Combustion Model in 4-Stroke HCCI/SI GDI Engine and Model-based Fast Calibration", SAE Paper 2012-01-1123.

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- H.M. Xu "Visualization for IC Engines' Today and Tomorrow," Keynote, NAACEE (North America Association Chinese Engine Engineers) Annual Conference, Detroit, 8 April 2014
- H. M. Xu, "Dieseline and new Biofuels for Future Engines," 5th International Symposium of Internal combustion Engines, Tianjin, 1-4 July 2013.
- H.M. Xu, "Characteristics of particulate matter emissions of an automotive diesel engine under cold start and transient operating conditions," Cambridge Particle Meetings, 14 May 2013.
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- H.M. Xu, "Present and Future of Internal Combustion Engines," inaugural lecture, University of Birmingham, 19 March 2013.
- H.M. Xu, "Some Characteristics of PM Emissions of Biofuels", Cambridge PM Meetings, 18 May 2012.
- H.M. Xu, "How far Can We go with HC Fuels for IC Engines," European Fuels Conference, Paris, 13-16 March 2012.
- H.M. Xu: "Facing the challenge: the UK Red Brick Universities", Tsinghua University, 24 April 2011.
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- H.M. Xu, "Advanced Engine Research," Invited lectures in State Key of IC Engines of China, Summer School, 17-19 July 2010
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