Dr Xinyan Huang

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Academic Position

Assistant Professor	The Hong Kong Polytechnic University (PolyU) Department of Building Environment and Energy Engineering	2017 - Present
Deputy Director	Research Center for Fire Safety Engineering	
Deputy Program Leader	BEng of Structural and Fire Safety Engineering	
Member	Research Institute for Smart Energy; Research Institute for Sustainable Urban Development (Urban Geo-Hazards)	

Education

Ph.D.	Imperial College London, UK Mechanical Engineering Advisor: Prof. Guillermo Rein Thesis: *Fundamental Study of Smouldering Combustion of Peat in Wildfires*	2012 – 2016
M.Sc.	University of California, San Diego, USA Mechanical Engineering Advisor: Prof. Forman Williams Thesis: *Ignition and Spread of Electrical Wire Fires*	2010 – 2012
B.Eng.	Southeast University, China Thermal Science and Power Engineering	2006 – 2010

Past Academic Experience

Lecturer & Postdoc	University of California at Berkeley, USA (2016 - 17) Mechanical Engineering Advisor: Prof. Carlos Fernandez-Pello *Project: Microgravity Combustion & Space Fire Safety* by NASA & JAXA
Visiting Scholar	University of Technology Sydney (2022); State Key Lab of Fire Science, China (2013); National University of Singapore (2013); Hokkaido University, Japan (2011);

Research Interests

Heat Transfer, Combustion, Building Fire Safety, Smart Firefighting, Wildland Fires and Ecology, Fire Modeling and Investigation; Energy Thermal Safety, Bioenergy Utilization and Environmental Science

Research Overview

- **Publications:** > 140 Journal Papers; >150 Conference Communications
- **Citations:** > 3,600, h-index = 34 (Google Scholar), World's top 2% most-cited scientists (Stanford)
- **Supervision:** 10 Postdocs, 19 PhD students (4 graduated), >50 Master and undergraduate students
- **Research Funding:** > HK$ 12 million (PI or co-PI)
- **Reviewer:** >50 Journals;
- **Patents Pending/Granted:** 14

Professional Societies

Combustion Institute (CI); Society of Fire Protection Engineers (SFPE); Int Association for Fire Safety Science (IAFSS); International Association of Wildland Fire (IAWF); Chinese Society of Space Research (CSSR); Chartered Institution of Building Services Engineers (CIBSE), Hong Kong Institute of Engineers (HKIE)

Awards and Honors

2022	Excellent PhD Thesis Supervisor	China Fire Protection Association
2021	"5 Under 35 Award" for Top Rising Leaders	Society of Fire Protection Engineers
	Ricardo Award for Best Paper in Combustion Physics	Institute of Physics (IOP)
	Dean's Award for Outstanding Young Researchers	HK PolyU
	Jack Bono Award for Engineering Communications	Society of Fire Protection Engineers
2020	IAFSS Proulx Early Career Award	Intl. Assoc. for Fire Safety Science
	KTP Visiting Fellow	University of Technology Sydney
2019	Kan Tong Po International Fellowship	The Royal Society
	Fire Engineering Grand Award	HK Institution of Engineers (HKIE)
2018	Bernard Lewis Fellowship	Combustion Institute
	Early-Career Researcher (ECR) Reviewers' Choice Award	Publons - Clarivate Analytics
2017	Sugden Award for the Most Significant UK Contribution to Combustion Research	Combustion Institute (British Section)
	Top Reviewer for Multidisciplinary	Publons - Clarivate Analytics
2016	Katopodis Prize for Best PhD Thesis in Thermofluids	Imperial College London
2015	Best Student Seminar in Thermofluids	Imperial College London
	TREE Grant	Association for Fire Ecology (AFE)
	Watts Award for Outstanding Reviewer	Fire Technology
	Honorable Mention	5th Int. Conference of FESP
2014	Medal for PhD Research Excellence in Clean Fossil Fuels	Qatar Petroleum
	Award for Outstanding Student Abroad	China Scholarship Council
2013	International Mobility Award	Santander
2012	Exceptional Overseas Scholarship	Imperial College London

Best Conference Paper Awards	2nd Chinese National Conference on Thermal Safety Science (2021), 2nd International Symposium on Lithium Battery Fire Safety (2021)
Best Poster Awards	Chinese National Combustion Symposium (2019-20); Int. Symposium of Fire Safety Science (2017, 2014, 2011); 2nd European Fire Symposium (2015); 10th Asia-Oceania Symposium on Fire Science and Technology (AOAFST) (2015)
Best Combustion & Fire Image Award	Chinese National Combustion Symposium (2018-20); Combustion Art Competition of American Society for Gravitational and Space Research (ASGSR) (2017); International Symposium of Fire Safety Science (2014, 2011)
Editors' Featured Article	Fire Safety Journal (Vol. 120 in 2021; Vol. 110 in 2019; Vol. 95 in 2018)
	Fire Technology (Vol. 56 in 2020), Fire Material (2020-2021)

Teaching Experience

Hong Kong PolyU	Fire Science and Fire Safety Engineering (BSE6004)	PhD Level
	Research Methods (CE620)	
	Master Dissertation (BSE575), Fire Dynamics (BSE533), Computational Fire Modeling for Building Design (BSE531)	MSc Level
	Research Project (BSE4723), Fire Services (BSE3321),	BEng Level
	Air Conditioning (BSE2201)	

	Introduction to Fire Safety Engineering (MOOC online course)	
UC Berkeley (Lecturer)	Heat Transfer; Advanced Combustion; Thermodynamics	2016-2017
Imperial College (TA)	Thermofluid Lab; Heat Transfer; Experimental Reporting Skills	2012-2015
UC San Diego (TA)	Fluid Mechanics; Thermodynamics; Aerospace System Design	2011-2012

Scholarly Services

Associate Editor	International Journal of Wildland Fire – CSIRO (Official Journal of IAWF)	2021 -
Associate Editor	Fire Technology – Springer Nature (Official Journal of SFPE and NFPA)	2020 -
Editorial Board	Fire Safety Journal – Elsevier (Official Journal of IAFSS)	2021 -
Guest Editor	Fire Technology Special Issue: *Structure in Fire* (2023); *State-of-the-Art Fire Research in China* (2022); *Façade Flammability and Fire Engineering* (2021); *Spacecraft Fire Safety* (2018)	
	Frontiers in Mechanical Engineering Special Issue: *Wildland Fire* (2019)	

Professional Committee and Membership

- Advisory Panel of SFPE Committee on Sustainability and Fire (2023 -)
- Charted Engineer (CEng) with Engineering Council UK (2021 -)
- Registered Engineer, Hong Kong Institute of Engineers (2022 -)
- Board of Directors, International Association of Wildland Fire (2022 - 2024)
- Committee of Chinese Society of Microgravity Science and Applied Research (2021 -)
- Co-Chair of Technology and Communication Committee, Int. Association of Fire Safety Science (2021 -)
- Education Committee, International Association of Fire Safety Science (2021 -)
- Technical Committee on the Code for Fire Safety in Buildings, Buildings Department, HK (2018 - 2024)
- Fire Safety Committee, Buildings Department, Hong Kong (2018 – 22)
- Appeal Tribunal, Buildings Ordinance (Cap 123), Hong Kong (2022-2024)
- Combustion Webinar, Combustion Institute, https://sun.ae.gatech.edu/combustion-webinar/ (2020 -)
- Education Committee on the Wildland Fire Protection Research Center, China (2018 -)
- Fire Services Installation working group on Development of Best Practices for Operation and Maintenance of E&M Assets, Electrical and Mechanical Services Department (EMSD), Hong Kong (2018 -)
- Large Outdoor Fires & the Built Environment (LOF&BE) Working Group, IAFSS (2019 - 2022)

Consulting Experiences

• HK High Court (2020 -)	Expert Witness (Fire Investigation)
• HK Legal Aid Department (2020 -)	Investigation on fire accident and arson
• HK Building Department (2018 -)	Updating building fire safety code; assessing performance-based fire design
• PTeC (2018 -)	Conduct flammability tests for new timber materials; fire and explosion impact on the safe shell of nuclear power plants
• US Forest Service (2017)	Develop a new technique to quantify the flammability limit of wildland fuels
• Reax Engineering, US (2016-17)	Fire Investigation; Assess the self-ignition risk of coal pile in port; Evaluate the reliability of flame arrestor for portable gas can

Media Coverage

• Radio Television HK "The 123 Show"	SureFire: change the way that future major fires are dealt with, 29 Dec 2021
• Fire Science Show (Podcast)	AI in smart firefighting and the future of fire safety design 29 Jun 2021

• Channel NewsAsia (CNA) Radio Show	Expert Opinion on the deadly fire accident with 8 deaths in Yau Ma Tei, Hong Kong, 15 Nov 2020
• Sing Tao Daily	New discovery on the fire ignition process, 31 May 2019

Selected Research Grants (PI or co-PI)

- Key Technology Development of International Li-ion Battery Energy Storage Safety Evaluation, National Key R&D Program of China (2022YFE0207400), RMB8.5M, Co-I, 1/1/2023 – 31/12/2026
- Lithium-ion Battery fire dynamics under extreme storage and transport environment and smart fire detection, Shenzhen Municipal Science and Technology Innovation Commission (JCYJ2021032413 1006017), HK$0.5M, PI, 1/1/2022 – 12/31/2024.
- Analytical Platform for Material Flammability and Fire Emissions for Fire and Safety Engineering Education, PolyU Large Equipment Fund, HK$1M, PI, 15/06/2021 – 30/06/2022.
- Modeling and detecting the smoldering peat fire spread in the Inner Mongolian Greater Khingan, Inner Mongolian Science and Technology Fund, RMB 500K, co-PI, 1/1/2021 – 12/31/2024.
- SureFire: Smart Urban Resilience and Firefighting, RGC Theme-based Research Scheme (No. T22-505/19-N), HK$ 33M, co-PI, 01/01/2020 - 31/12/2024;
- Self-heating ignition and fire hazards of high-energy lithium-ion batteries, RGC Early Career Scheme (ECS: No. 25205519), HK$ 0.6 M, PI, 01/10/2019 - 30/9/2022;
- Study on spread of thermal runaway and fire safety of Li-ion battery, Shanghai Science and Technology Innovative Project Fund, HK$ 500K, co-PI, 01/10/2020 - 31/12/2022;
- Ignition Mechanism of Li-ion Battery Fire, The Royal Society - Kan Tong Po Visiting Fellowship, HK$ 30K, co-PI, 2020;
- Smart Firefighting System for the Sustainable Development of the Greater Bay Area, RISUD Emerging Frontier Area (EFA) Fund, HK$ 1.2M, PI, 01/01/2020 - 31/12/2022;
- Research and development of organic waste removal technology via smoldering and emission control strategy, Cooperation Fund of Sichuan (2019YFSY0040), RMB 200K, co-PI, 01/01/2019 - 31/12/2020;
- Smouldering Ignition and Quenching Criteria: Interactions between Heat-and-Mass Transfer and Heterogeneous Reactions under Limiting Conditions, NSFC General Fund (No. 51876183), RMB 600K, PI, 01/01/2019 - 31/12/2022;
- Fundamental Study on the Firebrand Ignition of Building Insulation Materials, PolyU Start-up Fund (BE-04), HK$ 500K, PI, 01/10/2017 - 30/09/2020;

Keynote Talks

1. *Progress in Flame Spread Dynamics and Near-Limit Behaviors,* **13th International Symposium on Fire Safety Science**, Waterloo, Canada, 26 April 2021.
2. *Research Advances and Challenges in smoldering fire,* **9th International Conference on Fire Science and Fire Protection Engineering**, Chengdu, China 19 Oct 2019.
3. *Fire Limits on Earth and in Space Environment,* **Workshop on Advances in Fire Engineering,** Xiamen, China, 6-7 Dec 2018.
4. *Limiting Oxygen Concentration of Microgravity Opposed Flame Spread,* **12th Asian Microgravity Symposium (AMS2018)**, Zhuhai, China, 15 Nov 2018.
5. *Smoldering Peat in Wildland Fires and the Fire Threshold of Earth,* **3rd Chinese National Young Scholar Meeting on Combustion Research**, Xi'an, China, 16 Apr 2017.

Invited Talks/Seminars/Webinars (>30)

2023	Tokyo University of Science
2022	University of Edinburgh; Australia National University (ANU); University of Sydney; University of Technology Sydney (UTS); University of Queensland (UQ); The University of New South Wales (UNSW); National Institute of Standards and Technology (NIST); Inner Mongolia Agricultural University

2021 SFPE London Student Chapter; IAFSS Workshop of Smart Firefighting; HKIE Annual Meeting; AOSFST Workshop of Machine Learning for Real-time Fire Forecast

2020 Country Garden Group; CIBSE HK Branch

2019 Qingdao Institute of Bioenergy & Bioprocess Technology (CAS); China University of Mining and Technology (Beijing); Toyohashi Technology University (Japan); University Putra Malaysia; Hong Kong Institute of Engineers (HKIE) Fire Division; China Academy of Engineering Physics; Sun Yat-sen University

2018 Huaqiao University, China; Imperial College London; Hong Kong Fire and Ambulance Services Academy; Civil Aviation University of China; University of Science and Technology of China; Beijing Forestry University

2017 University of Connecticut; Southern University of Science and Technology of China; Worcester Polytechnic Institute; University of Arizona; Southeast University of China; China University of Mining and Technology (Xuzhou); Wuhan University; Wuhan University of Technology

2016 Nanjing University of Technology, China; Worcester Polytechnic Institute

2015 Imperial College London (Best Student Seminar)

2014 University of Maryland, College Park; University of Science and Technology of China (USTC)

Book Authored / Edited

1. X. Huang and A. Tam (eds) (2023) **Intelligent Building Fire Safety and Smart Firefighting**, Springer. [to be published in 2023]
2. A. Usmani, L. Jiang, M.A. Orabi, A.A. Khan, X. Huang (2023). Modelling and Simulation in Structural Fire Engineering. CRC Press. [to be published in 2023]

Book Chapters

1. Y. Zeng, X. Huang* (2023) *Smart Building Fire Safety Design Driven by Artificial Intelligence*, Chapter 5, **Interpretable Machine Learning for the Analysis, Design, Assessment, and Informed Decision Making for Civil Infrastructure** (M.Z. Naser Ed.), Elsevier.
2. X. Huang, X. Wu, X. Zhang, A. Usmani (2022) *Smart Tunnel Fire Safety Management by Sensor Network and Artificial Intelligence*, Chapter 18, **Leveraging Artificial intelligence into Engineering, Management, and Safety of Infrastructure** (M.Z. Naser Ed.), CRC Press. https://doi.org/10.1201/9780367823467-18
3. X. Huang, X. Wu, A. Usmani (2022). *Perspectives of Using Artificial Intelligence in Building Fire Safety*. In: Naser, M., Corbett, G. (eds) **Handbook of Cognitive and Autonomous Systems for Fire Resilient Infrastructures**. Chapter 6, Springer, https://doi.org/10.1007/978-3-030-98685-8_6
4. M.A. Santoso, X. Huang, N. Prat, E. Christensen, Eirik; Y. Hu, G. Rein (2019) *Smouldering Fires and Soils,* Chapter 14, **Fire Effects on Soil Properties** (P. Pereira Ed.), CSIRO Publishing, 203-216.
5. E. Christensen, Y. Hu, F. Restuccia, M. A. Santoso, X. Huang, G. Rein (2019) *Experimental Methods and Scales in Smouldering Wildfires*, Chapter 19, **Fire effects on Soil Properties** (P. Pereira Ed.), CSIRO Publishing, 267-280.

Technical Notes

1. H.Y. Wong, Y. Zhang, X. Huang* (2022) *A Review of Dynamic Directional Exit Signage: Challenges and Perspectives*, **NFPA Technical Report (**No. FPRF-2022-12), National Fire Protection Association (NFPA).
2. Y. Liu, X. Huang* (2021) *Fire Risk of Transporting and Storing Massive Li-ion Batteries*, **Fire and Blast Information Group (FABIG) Newsletter**, 82, 6-16.
3. H. Yuan, X. Huang, G. Rein (2018) **Gpyro Workbook on Pyrolysis & Smouldering Problems**. DOI: 10.5281/zenodo.1212540
4. T. Yarlagadda, X. Huang, T. Huang, X. Zhuo, Z. Li, X. Huang*, A. Usmani (2020) *Nuclear containment subjected to near field impact loading: A design safety project*, **Fire and Blast Information Group (FABIG) Newsletter**, 77, 72-82.

5. Suzuki S, McAllister S, Manzello SL, Filkov A, Gorham D, Huang X, et al. (2020) *Large Outdoor Fires and the Built Environment (LOF&BE): Summary of Virtual Workshop*. **NIST Special Publication 1263**.

Journal Publications

142. H. Yuan, P. Sun, X. Huang, G. Rein* (2022) *Computational Study of the Multidimensional Spread of Smouldering Combustion at Different Peat Conditions*, **Fuel** (Accepted).

141. Y. Zhang, X. Zhang, X. Huang* (2023) *Design a Safe Firefighting Time (SFT) for Major Fire Disaster Emergency Response*, **International Journal of Disaster Risk Reduction**, 103606. doi: 10.1016/j.ijdrr.2023.103606

140. J. Shi, W. Xie, J. Li, X. Zhang, X. Huang, A. Usmani, F. Khan, G. Chen (2023) *Real-time plume tracking using transfer learning approach*, **Computers and Chemical Engineering**, doi: 10.1016/j.compchemeng.2023.108172

139. C. Fan, D. Luan, R. Bu, Z. Sheng, F. Wang*, X. Huang* (2023) *Can heavy rainfall affect the burning and smoke spreading characteristics of fire in tunnels?* **International Journal of Heat and Mass Transfer**, 207, 123972. doi: 10.1016/j.ijheatmasstransfer.2023.123972

138. D. Luan, R. Bu, Z. Sheng, C. Fan*, X. Huang* (2023) *Experimental study on the impact of asymmetric heavy rainfall on the smoke spread and stratification dynamics in tunnel fires*, **Tunnelling and Underground Space Technology**, 134, 104992. doi: 10.1016/j.tust.2023.104992

137. S. Lin, Y. Qin, X. Huang*, M. Gollner (2023) *Use of Pre-Charred Surfaces to Improve Fire Performance of Wood*, **Fire Safety Journal**, 136, 103745. doi: 10.1016/j.firesaf.2023.103745

136. F. Zhu, X. Huang*, X. Chen, S. Wang* (2023) *Flame spread transition to regression of thick fuel in oxygen-limited concurrent flow*, **Fire Technology** (in press). doi: 10.1007/s10694-023-01369-9

135. Y. Zhang*, X. Huang* (2023) *A Review of Tunnel Fire Evacuation Strategies and State-of-the-Art Research in China*, **Fire Technology** (in press). doi: 10.1007/s10694-022-01357-5

134. S. Zhou, X. Qi, J. Gao*, X. Huang, D. Zhang (2023) *Countercurrent Flame Propagation and Quenching Behaviour in a Packed Bed of Spherical PMMA Beads in an Upward Flow of Pure Oxygen*, **Combustion Science and Technology** (in press). doi: 10.1080/00102202.2022.2160633

133. Y. Qin, D.N.S. Musa, S. Lin*, X. Huang* (2022) *Deep Peat Fire Persistently Smouldering for Weeks: A Laboratory Demonstration*, **International Journal of Wildland Fire**, 32(1): 86-98. doi: 10.1071/WF22143

132. S. Lin, S. Wang, X. Huang* (2022) *Modeling Smoldering Ignition by an Irradiation Spot*, **Fire Safety Journal**, 134, 103708. doi: 10.1016/j.firesaf.2022.103708

131. M. Raza[#], Y. Chen[#], J. Trapp, H. Sun, X. Huang*, W Ren* (2022) *Smoldering peat fire detection by time-resolved measurements of transient CO_2 and CH_4 emissions using a novel dual-gas optical sensor*, **Fuel**, 334, 126750. doi: 10.1016/j.fuel.2022.126750

130. A. Khan*, M. Khan, K. Leung, X. Huang*, M. Luo, A. Usmani (2022) *A Review of Critical Fire Event Library for Buildings and Safety Framework for Smart Firefighting*, **International Journal of Disaster Risk Reduction**, 83, 103412. doi: 10.1016/j.ijdrr.2022.103412

129. Y. Zeng[#], X. Zhang[#], L Su, X. Wu*, X Huang* (2022) *Artificial Intelligence Tool for Fire Safety Design (IFETool): Demonstration in Large Open Spaces*, **Case Studies in Thermal Engineering**, 102483. doi: 10.1016/j.csite.2022.102483

128. T. Zhang, Z. Wang, Y. Zeng, X. Wu, X. Huang*, F. Xiao (2022) *Building Artificial-Intelligence Digital Fire (AID-Fire) System: A Real-scale Demonstration*, **Journal of Building Engineering**, 62, 105363. doi: 10.1016/j.jobe.2022.105363

127. Y. Liu, H. Niu, J. Liu, X. Huang* (2022) *Layer-to-Layer Thermal Runaway Propagation of Open-Circuit Cylindrical Li-ion Batteries: Effect of Ambient Pressure*, **Journal of Energy Storage**, 105709. doi: 10.1016/j.est.2022.105709

126. S. Ahmad, C.K. Cheng, K.T. Lau, S.A. Khan, X. Huang. J. Zhao* (2022) *Studying the synergistic roles of nanostructures on the rapid boiling process using molecular dynamics simulation*, **Heat Transfer Engineering**. doi: 10.1080/01457632.2022.2127043

125. Y. Qin, Y. Chen, S. Lin*, X. Huang* (2022) *Limiting Oxygen Concentration and Supply Rate of Smoldering Propagation*, **Combustion and Flame**, 105709. doi: 10.1016/j.combustflame.2022.112380
124. Z. Liang[#], S. Lin[#], X. Huang* (2022) *Smoldering Ignition and Emission Dynamics of Wood under Low Irradiation*, **Fire and Materials**. doi: 10.1002/fam.3107
123. S. Ahmad, S. Khan, H. Ali, X. Huang, J. Zhao* (2022) *Molecular dynamics study of nanoscale boiling on double layered porous meshed surfaces with gradient porosity*, **Applied Nanoscience**. doi: 10.1007/s13204-022-02568-6
122. Y. Chen, S. Lin*, Z. Liang, X. Huang* (2022) *Clean Smoldering Biowaste Process: Effect of Burning Direction on Smoke Purification by Self-Sustained Flame*, **Fuel Processing Technology**, 107453. doi: 10.1016/j.fuproc.2022.107453
121. Y. Liu, H. Niu, C. Xu, X. Huang* (2022) *Thermal runaway propagation in linear battery module under low atmospheric pressure*, **Applied Thermal Engineering**, 119086. doi: 10.1016/j.applthermaleng.2022.119086
120. P. Sun, Y. Liu, X. Huang* (2022) *Exploring the Brachistochrone (Shortest-Time) Path in Fire spread*, **Scientific Reports**, 12, 13600. doi: 10.1038/s41598-022-17321-w
119. W.C. Tam, E.Y. Fu, J. Li, X Huang, J. Chen, M.X. Huang (2022) *A Spatial Temporal Graph Neural Network Model for Predicting Flashover in Arbitrary Building Floorplans*, **Engineering Applications of Artificial Intelligence**, 115, 105258. doi: 10.1016/j.engappai.2022.105258
118. J. Shi*, W. Xie, X. Huang*, F. Xiao, A. Usmani, F. Khan, X. Yin, G. Chen (2022) *Real-time natural gas release forecasting by using physics-guided deep learning probability model*, **Journal of Cleaner Production**, 368, 133201. doi: 10.1016/j.jclepro.2022.133201
117. X. Zhang, X. Wu*, X. Huang* (2022) *Smart real-time forecast of transient tunnel fires by a dual-agent deep learning model*, **Tunnelling and Underground Space Technology**, 128, 104631. doi: 10.1016/j.tust.2022.104631
116. S. Lin, X. Huang* (2022) *Extinction of Wood Fire: Modelling Smoldering and Near-Limit Flame under Irradiation*, **Fire Technology** (in press) doi: 10.1007/s10694-022-01295-2
115. P. Sun, X. Huang*, C. Xu (2022) *Flashpoint and Burning of Thin Molten Plastic Pool Above Hot Boundary*, **Applied Thermal Engineering**, 118931. doi: 10.1016/j.applthermaleng.2022.118931
114. M.A. Orabi, L. Jiang*, X. Huang*, A. Usmani (2022) *A Review on Structural Fire Tests of Two-Way Composite Floors*, **Fire Technology**, 58, 2533–2587. doi: 10.1007/s10694-022-01277-4
113. Y. Chen, S. Lin, Z. Liang*, N.C. Surawski, X. Huang* (2022) *Smouldering Organic Waste Removal Technology with Smoke Emissions Cleaned by Self-Sustained Flame*, **Journal of Cleaner Production**, 132363. doi: 10.1016/j.jclepro.2022.132363
112. H. Niu, C. Chen, Y. Liu*, L. Li, Z. Li, D. Ji, X. Huang* (2022) *Mitigating Thermal Runaway Propagation of NCM 811 Prismatic Batteries via Hollow Glass Microspheres Plates*, **Process Safety and Environmental Protection**, 162, 672-683. doi10.1016/j.psep.2022.04.049
111. Z. Wang, T. Zhang*, X. Huang* (2022) *Predicting Real-time Fire Heat Release Rate based on Flame Images and Deep Learning*, **Proceedings of the Combustion Institute**, 39 (in press). doi: 10.1016/j.proci.2022.07.062
110. T. Zhang, Z. Wang, H.Y. Wong, W.C. Tam, X. Huang*, F. Xiao (2022) *Real-time Forecast of Compartment Fire and Flashover based on Deep Learning*, **Fire Safety Journal**, 129, 103579. doi: 10.1016/j.firesaf.2022.103579
109. F. Zhu, X. Huang*, S. Wang* (2022) *Flame spread over polyethylene film: Effects of gravity and fuel inclination*, **Microgravity Science and Technology** (in press). doi: 10.1007/s12217-022-09945-4
108. Y. Li[#], Z. Wang[#], X. Huang* (2022) *An Exploration of Equivalent Scenarios for Building Facade Fire Standard Tests*, **Journal of Building Engineering**, 52, 104399. doi: 10.1016/j.jobe.2022.104399
107. Z. Liang, Z. Yu, H. Liu, L. Chen, X. Huang (2022) *Combustion and Emission Characteristics of a Compression Ignition Engine burning a Wide Range of Conventional Hydrocarbon and Alternative Fuels*, **Energy,** 123717. doi: 10.1016/j.energy.2022.123717

106. H. Hu, J. Shi, Z. Qi, H. Li, X Huang, J. Ji* (2022) *Flammability and Flame Spread Behaviour of Common Fuels in Chinese Historical Buildings: An Experimental Research*, **Combustion Science and Technology** (in press). doi: 10.1080/00102202.2022.2050717
105. J. He, X. Huang*, X. Ning, T. Zhou, Jian Wang*, R. Yuen (2022) *Modelling Fire Smoke Dynamics in a Stairwell of High-Rise Building: Effect of Ambient Pressure*, **Case Studies in Thermal Engineering**, 101907. doi: 10.1016/j.csite.2022.101907
104. C. Xiong, Z. Wang, Y. Huang, F. Shi, X. Huang* (2022) *Smart Building Fire Hazard Evaluation by Attenuation of Alarm Sound Field*, **Journal of Building Engineering**, 104264. doi: 10.1016/j.jobe.2022.104264
103. S. Wang[#], S. Lin[#], Y. Liu, X. Huang*, M.J. Gollner (2022) *Smoldering Ignition using a Concentrated Solar Irradiation Spot*, **Fire Safety Journal**, 128, 103549. doi: 10.1016/j.firesaf.2022.103549
102. Y. Chen, Z. Liang, S. Lin*, X. Huang* (2022) *Limits of Sustaining a Flame above Smoldering Woody Biomass*, **Combustion Science and Technology** (in press). doi: 10.1080/00102202.2022.2041000
101. Z. Wang, T. Zhang, X. Huang* (2022) *Numerical Modeling of Compartment Fire: Ventilation Characteristics and Limits of Kawagoe's Law*, **Fire Technology** (in press). doi: 10.1007/s10694-022-01218-1
100. Y. Jiang[#], T. Zhang[#], S. Liu, Q. He, L. Li, X. Huang* (2022) *Full-scale fire tests in the underwater tunnel with sidewall smoke extraction*, **Tunnelling and Underground Space Technology**, 122, 104374 doi: 10.1016/j.tust.2022.104374
99. S. Lin, H. Yuan*, X. Huang* (2022) A *Computational Study on the Quenching and Near-Limit Propagation of Smoldering Combustion*, **Combustion and Flame**, 238, 111937. doi: 10.1016/j.combustflame.2021.111937
98. Z. Wang, T. Zhang, X. Wu*, X Huang* (2022) *Predicting Transient Building Fire Based on External Smoke Images and Deep Learning*, **Journal of Building Engineering**, 103823. doi: 10.1016/j.jobe.2021.103823
97. X. Wu, X. Zhang, Y. Jiang, X. Huang*, G. Huang, A. Usmani (2022) *An intelligent tunnel firefighting system and small-scale demonstration*, **Tunnelling and Underground Space Technology**, 104301. doi: 10.1016/j.tust.2021.104301
96. K. Li*, Z. Ma, X. Huang*, Y. Zou (2022) *Merging Dynamics of Dual Parallel Linear Diffusion Flames*, **Fire Safety Journal,** 127, 103490. doi: 10.1016/j.firesaf.2021.103490
95. B. Zhou*, H. Yoshioka, T. Noguchi, K. Wang, X. Huang* (2022) *Fire Performance of EPS ETICS Façade: Effect of Test Scale and Masonry Cover*, **Fire Technology**, 59, 95–116. doi: 10.1007/s10694-021-01195-x.
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Other Professional services

Conference Committee/Organizer

- 3rd International Symposium on Lithium Battery Fire Safety (3rd ISLBFS), Qingdao, China (2023)
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- Chinese National Young Scholar Meeting on Combustion (2018 – 21)
- 7th Association for Fire Ecology (AFE) International Congress, Orlando, USA (2017)
- 8th Intl. Conference on Fire Science & Fire Protection Engineering, Nanjing, China (2017)

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- Intl. Association of Fire Safety Science (IAFSS) (2012 -)
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- Energy & Fuel
- Fire Ecology
- Journal of Fire Science
- Applied Sciences
- Frontiers in Plant Science
- Building Simulation
- Frontiers in ICT
- Frontiers in Mech. Engineering

- Fire Safety Science/IAFSS Symposium
- Combustion Science and Technology
- International Journal of Wildland Fire
- J. of Analytical and Applied Pyrolysis
- J. of Thermal Analysis and Calorimetry
- Experimental Thermal and Fluid Science
- Case Studies in Thermal Engineering
- ACS Applied Polymer Materials
- Forest Ecosystems
- Physica A: Statistical Mechanics and its Applications
- Canadian Journal of Forest Research
- Tunnelling and Underground Space Technology
- Energy Sources, Part A
- Journal of Building Engineering
- Journal of Environmental Informatics
- Mathematical Biosciences and Engineering
- Applied Energy
- Fire and Material
- Energy Technology
- Soil Discussions
- Cleaner Materials
- Building and Environment
- Scientific Reports
- ACS Omega
- Thin-Walled Structures
- Journal of Cleaner Production
- Combustion Theory and Modelling
- Materials
- Environmental Technology
- Sustainable Energy & Fuels
- Fire
-

[#] Received *Outstanding Reviewer Award*

Proposal Reviewer

- Engineering and Physical Sciences Research Council (EPSRC), UK
- National Research and Development Agency (ANID), Chile
- National Natural Science Foundation of China (NSFC)
- NASA (Combustion Science)

PhD Thesis Examiner / Reviewer

2019	Aaron Bolanos Cuevas	University of Queensland, Australia
2016	Nieves Fernández Áñez	Universidad Politécnica de Madrid, Spain

Experience of Hosting Visiting Scholar

2019 - 2020	Professor Xu, Cangsu	Zhejiang University

Experience as Postdoc Supervisor

1. Dr Shakeel Ahmad (2022.5 – present) PhD from PolyU
   Project: Modelling of fire-resistance phase change processes
2. Dr Khan, Aatif Ali (2021.12 – 2022.10) PhD from PolyU
   Project: Structural Fire safety Analysis with AI and Big Data
   Current Position: Lecturer in University of Canterbury, New Zealand
3. Dr Rahul Wadhwani (2022.6 – present) PhD from University of Victoria
   Project: Smart firefighting for wildland urban interface
4. Dr. Lin, Shaorun (2021.9– present) PhD from PolyU
   Project: Early detection of peat wildfires via AI methods
5. Dr. Zhang, Yuxin (2022.5– present) PhD from Tongji University
   Project: Fire Evacuation using artificial intelligence
6. Dr. Yuan, Han (2021.1 – 2021.12) PhD from Imperial College London
   Project: Numerical modelling on smoldering fire
   Current position: Postdoc Fellow at Imperial College London
7. Dr. Liang, Zhirong (2021.1 – 2022.5) PhD from Beihang University
   Project: Emission characteristics of biomass combustion
   Current position: Assistant Professor at Zhongfa Aviation University

8. Dr. Xiong, Caiyi (2019.6 – present) PhD from USTC
   Project: Acoustic Effect on Diffusion Flame
   Current position: Tenure-Track Assistant Professor at South China University of Technology
9. Dr. Wang, Supan (2019.8 – 2020.8) PhD from USTC
   Project: Thermochemical Analysis of timber Fire
   Current position: Associate Professor at Nanjing Tech University
10. Dr. Wu, Xiqiang (2019.10 – 2020.8) PhD from University of Hong Kong
    Project: Machine-Learning Based Fire Modelling for Smart Firefighting
    Current position: Associate Professor at Southeast University, China

PhD Advising Experience

As Chief Supervisor

1. Dr Lin, Shaorun (2018 – 2021) Rated "Excellent" in Viva
   Thesis: Fundamental Study of Near-Limit Smouldering Fire Dynamics
   Current position: Postdoc Fellow at PolyU (joint postdoc program with UC Berkeley)
2. Dr Sun, Peiyi (2019 – 2022) Rated "Excellent" in Viva
   Thesis: Dripping Ignition Mechanism and Fire Risks of Thermoplastic Drips
3. Su, Lingchu (2019 – 2025) Part-time PhD student
   Thesis: Artificial Intelligence on the Performance-Based Fire Design
4. Chen, Yuying (2020 – 2023) Dual PhD degree with Univ. Tech. Sydney
   Thesis: Biomass Smouldering Processes, Emission Flammability, and Carbon Analysis
5. Wang, Zilong (2020 – 2023)
   Thesis: AI and CV based Smart Firefighting and Risk Assessment
6. Zhang, Tianhang (2020 – 2023)
   Thesis: Smart Firefighting System for Building Fire Environment
7. Zhang, Xiaoning (2021 – 2023)
   Thesis: A study on AIoT-based smart firefighting system for tunnel fire safety
8. Liu, Yanhui (2021 – 2024)
   Thesis: A fundamental study of lithium-ion battery fire safety under extreme environment
9. Zeng, Yanfu (2021 – 2024)
   Thesis: AI-based Smart Firefighting System for Complex Buildings
10. Li, Yizhou (2021 – 2025)
    Thesis: Wildfires Forecast Based on Artificial Intelligence and UAV
11. Qin, Yunzhu (2021 – 2025)
    Thesis: Numerical modelling of oxygen-limited smouldering fire
12. Wong, Ho Yin (2021 – 2023)
    Thesis: Smart Fire Evacuation System Driven by Artificial Intelligence and Sensor Network
13. Ding, Yifei (2022 – 2025)
    Thesis: Intelligent Fire Evacuation Driven by Artificial Intelligence and Computer Vision
14. Cheung, Wai Kit (2022 – 2025)
    Thesis: AI-Driven Visibility Enhancement in Fire Scene
15. Zhang, Lei (2023 – 2025)
    Thesis: Numerical Simulation of Structural Failure Induced Battery Fire

As Co-Supervisor

16. Dr Orabi, Anwar (2019 – 2021) Co-supervising with Prof. A. Usmani
    Thesis: Structural analysis of large structures subject to fire

Current position: Lecturer in University of Queensland, Australia

17. Dr. Khan, Aatif Ali (2019 – 2021) Co-supervising with Prof. A. Usmani
    Thesis: An Open Computational Framework for simulating structural response to real fires
    Current Position: Lecturer in University of Canterbury, New Zealand
18. Nan, Zhuojun (2020 – 2023) Co-supervising with Prof. A. Usmani
    Thesis: AI-driven Structure Fire Safety Design
19. Dayang Nur Sakinah binti Musa (2020 – 2023) Co-supervising with Dr Zahirasri Tohir
    PhD student from Universiti Putra Malaysia
    Thesis: Smouldering Peat Fire Behaviour and Extinction Mechanism

Other Highlighted Advising Experience (Master and Undergraduate Students)

2022 Joshua Khai (Toyohashi Tech, Japan): *Fire risks of electric vehicle vs. conventional vehicles*
Yamazaki Shun (Toyohashi Tech, Japan): *Trend of Wildland fires in Japan and impact factors*

2021 Gulzhan Aldan (BEng student, PolyU): *Immersing cooling efficiency for preventing battery thermal runaway*
Wilson Wai Kit Cheung (BEng student, PolyU): *Modelling CO from Smoldering fire in large open spaces*

2020 Siyan WANG (BEng student, PolyU – Now PhD Student at UC Berkeley with full scholarship): *Ignition of wildfire by concentrated solar radiation*
Yau Kuen (Daniel) CHEUNG (BEng student, PolyU): *Suppression of peat fire by rain*
Haoran FAN (MSc student): *Acoustic interaction of flame* Distinction

2019 Yanhui LIU (MEng student, PolyU – Now RA): *Self-heating ignition of Li-ion batteries* Distinction
Xiaoning Zhang (MEng student, PolyU – Now PhD student): *A study of tunnel fire database* Distinction

2018 Jingzhe ZHU (MEng student, PolyU): *Fire behaviors and impact to nuclear power plant in the strike by commercial passenger jet*
Haiwei LI (BEng student, PolyU – Now PhD student at Cambridge): *Investigating the Effect of Fire on the Drying Process in Porous Soils*

2017 Whi Il KIM (BS student, UC Berkeley): *Pyrolysis Model of Mixed Fire-Resistant Fabric*
Weiyu HE (BS student, UC Berkeley): *Flame Spread over Discrete Fuel*
Beshoy Tawfik (BS student, UC Berkeley – Now Engineer in United Airline): *Airflow-Assisted flame Spread over Electrical Wire*

2016 James REN (BS student, UC Berkeley): *Imaging Process Techniques in Fire Research*
Connie LEE (BS student, UC Berkeley – Now PhD student at Univ. of Michigan): *Phase Change process in Wire Fire*
Andy RODRIGUEZ (BS students, UC Berkeley – Now PhD student): *Ignition of Forest Fuels*
Yoshinari KOBAYASHI (PhD student, Tokyo Univ. – Now Assistant Professor in Gifu University): *Melting and Extinction Limit in Wire Fire*
Yusuke KONNO (MSc students, Hokkaido Univ., – Now Assistant Professor): *Dripping behaviors in flame spread over electrical wires*
Shiyu JING & Meng QU (BS student, UC Berkeley): *Ignition Delay for Cylindrical Fuels*

2015 Jiayun SONG (PhD student, USTC): *The Wind Effect on Landing Distribution of Firebrands*
Kyosuke MIYAMOTO: *Wire Fire under External Radiation*
Supan WANG (PhD student, USTC – Now Associate Professor at Nanjing Tech University): *Hot-particle Ignition of Insulation Materials*

2014 Michela Gramola (BS student, Cambridge – Now PhD student at Imperial College): *2D Spread Behavior in Smoldering Wildfires*
Pierre Idoux (MSc student, Imperial): *Novel Demining Technology with Controlled Smoldering Fires*

2013 Tom McArdle (MEng student, Imperial): *Peat Fires in Mine Field*