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ACADEMIC POSITION

Assistant Professor	The Hong Kong Polytechnic University (PolyU) Department of Building Environment and Energy Engineering	2017 -
Deputy Director	Research Center for Fire Safety Engineering	2018 -
Deputy Program Leader	BEng of Structural and Fire Safety Engineering	2018 -
Member	Research Institute for Sustainable Urban Development (Urban Geo-Hazards)	2018 -

EDUCATION

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

OTHER ACADEMIC EXPERIENCES

Lecturer & Postdoc	Dept. of Mechanical Engineering, University of California at Berkeley, USA (2016 - 17) <i>Project: Microgravity Combustion and Fire Safety in Space</i> by NASA & JAXA
Visiting Scholar	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:** > 100 Journal Papers; >100 Conference Communications
- **Citations:** > 2,400, h-index = 29, h10-index = 49 ([Google Scholar](#))
- **Supervision:** 7 Postdoc Fellows, 14 PhD students, >15 Master students, and >30 undergrad students
- **Funding:** HK\$ 6 million (PI), HK\$ 35 million (co-PI)
- **Reviewer:** >50 Journals
- **Patents Granted/Pending:** 6

PROFESSIONAL SOCIETIES

Combustion Institute (CI); Association for Fire Ecology (AFE); Society of Fire Protection Engineers (SFPE);
International 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)

AWARDS

2021	“5 Under 35 Award” for Top Rising Leaders Ricardo Award for Best Paper in Combustion Physics Dean’s Award for Outstanding Young Researchers Jack Bono Award for Engineering Communications	Society of Fire Protection Engineers Institute of Physics (IOP) HK PolyU Society of Fire Protection Engineers
2020	IAFSS Proulx Early Career Award KTP Visiting Fellow	Intl. Assoc. for Fire Safety Science University of Technology Sydney
2019	Kan Tong Po International Fellowship Fire Engineering Grand Award	The Royal Society HK Institution of Engineers (HKIE)
2018	Bernard Lewis Fellowship Early-Career Researcher (ECR) Reviewers' Choice Award	Combustion Institute Publons - Clarivate Analytics
2017	Sugden Award for the Most Significant UK Contribution to Combustion Research Top Reviewer for Multidisciplinary	Combustion Institute (British Section) Publons - Clarivate Analytics
2016	Katopodis Prize for Best PhD Thesis in Thermofluids	Imperial College London
2015	Best Student Seminar in Thermofluids TREE Grant Watts Award for Outstanding Reviewer Honorable Mention	Imperial College London Association for Fire Ecology (AFE) Fire Technology 5 th Int. Conference of FESP
2014	Medal for PhD Research Excellence in Clean Fossil Fuels Award for Outstanding Student Abroad	Qatar Petroleum China Scholarship Council
2013	International Mobility Award	Santander
2012	Exceptional Overseas Scholarship	Imperial College London
2011	Overseas Research Scholarship	Hokkaido University, Japan
Best Conference Paper Awards	2 nd Chinese National Conference on Thermal Safety Science (2021), 2 nd International Symposium on Lithium Battery Fire Safety (2021)	
Best Poster Awards	Chinese National Combustion Symposium (2019-20); IAFSS International Symposium (2017, 2014, 2011); 2 nd European Fire Symposium (2015); 10 th AOAFST Fire Symposium (2015)	
Best Combustion & Fire Image Award	Chinese National Combustion Symposium (2018-20); ASGSR Combustion Art Competition (2017); IAFSS International Symposium (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)	

TEACHING EXPERIENCE

Hong Kong PolyU	Fire Science and Fire Safety Engineering (BSE6004) Research Methods (CE620) Master Dissertation (BSE575), Fire Dynamics (BSE533), Computational Fire Modeling for Building Design (BSE531) Research Project (BSE4723), Fire Services (BSE3321), Air Conditioning (BSE2201) Introduction to Fire Safety Engineering	Ph.D. Level MSc Level BEng Level MOOC (online)
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 publishing (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: <i>State-of-the-Art Fire Research in China</i> (2022); <i>Façade Flammability and Fire Engineering</i> (2021); <i>Spacecraft Fire Safety</i> (2018) Frontiers in Mechanical Engineering Special Issue: <i>Wildland Fire</i> (2019)	

PROFESSIONAL COMMITTEE (MEMBERSHIP)

- Chartered Engineer (CEng) with Engineering Council UK (2021 -)
- 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, International Association of Fire Safety Science (2021 -)
- Education Committee of Fire Safety Science & Engineering, International Association of Fire Safety Science (2021 -)
- Technical Committee on the Code for Fire Safety in Buildings, Buildings Department, Hong Kong (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)

- Lithium-ion Battery fire dynamics under extreme storage and transport environment and smart fire detection, Shenzhen Municipal Science and Technology Innovation Commission, HK\$0.5M, 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.
- 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;
- Smoldering 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;
- Fundamental study on the smoldering process of organic food wastes, ZJU State Key Lab of Clean Energy Utilization Open Fund (ZJUCEU2018012), RMB 80K, PI, 01/09/2019 - 31/8/2021;
- Extinction Limit of Ancient Timber Building, USTC SKLFS Open Fund, (HZ2019-KF02), RMB 80K, PI, 01/09/2019 - 31/8/2021;

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 (>20)

- 2020 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 CHAPTERS/TECHNICAL NOTES

1. X. Huang, X. Wu, X. Zhang, A. Usmani (2022) *Smart Tunnel Fire Safety Management by Sensor Network and Artificial Intelligence*, Chapter 9, **Leveraging Artificial intelligence into Engineering, Management, and Safety of Infrastructure** (M.Z. Naser Ed.), CRC Press (in press).
2. X. Huang, X. Wu, A. Usmani (2022) *Perspectives of Using Artificial Intelligence in Building Fire Safety*, Chapter 7, **Handbook of Cognitive and Autonomous Systems for Fire Resilient Infrastructures** (M.Z. Naser Ed.), Springer (in press).

3. 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.
4. H. Yuan, X. Huang, G. Rein (2018) **Gpyro Workbook on Pyrolysis & Smouldering Problems**. DOI: 10.5281/zenodo.1212540
5. 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.
6. 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.
7. 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.
8. 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

2022

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** (Accepted).
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**, doi: 10.1007/s10694-021-01195-x.
94. C. Xiong, H. Fan, X. Huang*, C. Fernandez-Pello (2022) *Evaluation of burning rate in microgravity based on the fuel regression, flame area, and spread rate*, **Combustion and Flame**, 237, 111846. doi: 10.1016/j.combustflame.2021.111846

2021

93. C. Xiong, Z. Wang, X. Huang* (2021) *Acoustic Flame Extinction by the Sound Wave or Speaker-Induced Wind?* **Fire Safety Journal**, 126, 103479. doi: 10.1016/j.firesaf.2021.103479
92. Y. Liu, H. Niu, Z. Li, J. Liu*, C. Xu, X. Huang* (2021) *Thermal Runaway Characteristics and Failure Criticality of Massive Ternary Li-ion Battery Piles in Low-pressure Storage and Transport*, **Process Safety and Environmental Protection**, 155, 486-497. doi: 10.1016/j.psep.2021.09.031
91. S. Lin, T. Chow, X. Huang* (2021) *Smoldering Propagation and Blow-off on Consolidated Fuel under External Airflow*, **Combustion and Flame**, 234, 111685. doi: 10.1016/j.combustflame.2021.111685

90. J. Weng, D. Ouyang, Y. Liu, M. Chen, Y. Li, X. Huang*, J. Wang* (2021) *Thermal runaway propagation of Li-ion batteries: Effect of oxygen level and dilution gas*, **Journal of Power Sources**, 509, 230340. doi: 10.1016/j.jpowsour.2021.230340
89. G. Rein, X. Huang (2021) *Smouldering Wildfires in Peatlands, Forests and the Arctic: Challenges and Perspectives*, **Current Opinion in Environmental Science & Health**, 100296. doi: 10.1016/j.coesh.2021.100296
88. P. Sun, X. Zhang, C. Ding*, X. Huang* (2021) *Effect of Reduced Pressure on the Burning Dynamics of Fire Whirl*, **Fire Safety Journal**, 103419. doi: 10.1016/j.firesaf.2021.103419
87. A. Khan, R. Domada, X. Huang*, M. Khan, A. Usmani (2021) *Modeling the Collapse of the Plasco Building Part I: Reconstruction of Fire*, **Building Simulation** (in press). doi: 10.1007/s12273-021-0825-4
86. S. Lin, Y. Liu, X. Huang* (2021) *Climate-induced Arctic-Boreal Peatland Fire and Carbon Loss in the 21st Century*, **Science of Total Environment**, 148924. doi: 10.1016/j.scitotenv.2021.148924
85. S. Wang, P. Ding, S. Lin*, J. Gong, X. Huang* (2021) *Smoldering and flaming of disc wood particles under external radiation: Auto-ignition and size effect*, **Frontiers in Mechanical Engineering**. doi: 10.3389/fmech.2021.686638
84. C. Xiong, Y. Liu, H. Fan, X. Huang*, Y. Nakamura (2021) *Flame fluctuation and extinction under external acoustic wave and source*, **Scientific Reports**, 11, 14402. doi: 10.1038/s41598-021-93648-0
83. M. Khan, A. Khan, A. Usmani, X. Huang* (2022) *Can fire cause the collapse of Plasco Building: A numerical investigation*, **Fire and Materials**, 46:576-586. doi: 10.1002/fam.3003
82. H. Wang*, P. J. van Eyk, P. R. Medwell, C. H. Birzer, Z. F. Tian, M. Possell, X. Huang* (2021) *Smouldering fire and Emission Characteristics of Eucalyptus Litter fuel*, **Fire and Materials**, 46:560-575. doi: 10.1002/fam.3004
81. F. Richter, F.X. Jervis, X. Huang, G. Rein* (2021) *Effect of Oxygen on the Charring Rate of wood*, **Combustion and Flame**, 234,111591. doi: 10.1016/j.combustflame.2021.111591
80. S. Lin, X. Huang*, J. Gao*, J. Ji* (2021) *Extinction of Wood Fire: A Near-Limit Blue Flame above Hot Smoldering Surface*, **Fire Technology** (in press). doi: 10.1007/s10694-021-01146-6
79. S. Wang, Y. Zhang, X. Huang* (2021) *Ignition of EPS Foam by a Hollow Particle: Threshold, Auto-ignition, and Fire Point*, **Combustion and Flame**, 232, 111524. doi: 10.1016/j.combustflame.2021.111524
78. P. Sun, A. Rodriguez, W. Kim, X. Huang*, C. Fernandez-Pello (2021) *Effect of External and Internal Heating on the Flame Spread and Phase Change of Thin Polyethylene Tubes*, **International Journal of Thermal Sciences**, doi: 10.1016/j.ijthermalsci.2021.107054.
77. Q. Xie*, T. Gong, X. Huang* (2021) *Fire Zone Diagram of Flame-Retardant Cables: Ignition and Upward Flame Spread*, **Fire Technology**. doi: 10.1007/s10694-021-01133-x
76. L. Su#, X. Wu#, X. Zhang, X. Huang* (2021) *Smart Performance-Based Design for Building Fire Safety: Prediction of Smoke Motion via AI*, **Journal of Building Engineering**, 43, 102529. doi: 10.1016/j.jobee.2021.102529
75. P. Sun, Y. Jia, X. Zhang, X. Huang* (2021) *Fire Risk of Dripping Flame: Piloted Ignition and Soaking Effect*, **Fire Safety Journal**, 122, 103360. doi: 10.1016/j.firesaf.2021.103360
74. S. Lin, Y. Liu, X. Huang* (2021) *How to Build a Firebreak to Stop Smouldering Peat Fire: A Laboratory-Scale Study*, **International Journal of Wildland Fire**, 30(6) 454-461. doi: 10.1071/WF20155 Featured on the Journal Cover
73. B. Zhou*, H. Yoshioka, T. Noguchi, K. Wang, X. Huang* (2021) *Upward Fire Spread Rate over Real-scale EPS ETICS Façades*, **Fire Technology** (in press). doi: 10.1007/s10694-021-01103-3 Featured in SFPE European Magazine
72. X. Wu, X. Zhang, X. Huang*, F. Xiao, A. Usmani (2022) *A Real-time Forecast of Tunnel Fire Based on Numerical Database and Artificial Intelligence*, **Building Simulation**, 15, 511–524. doi: 10.1007/s12273-021-0775-x
71. C. Xiong, X. Huang* (2021) *Numerical Modeling of Flame Shedding and Extinction behind a Falling Thermoplastic Drip*, **Flow, Turbulence and Combustion** (in press). doi: 10.1007/s10494-021-00250-5
70. A. Khan, S. Lin*, X. Huang*, A. Usmani (2021) *Facade Fire Hazards of Bench-Scale Aluminum Composite Panel with Flame-Retardant Core*, **Fire Technology** (in press). doi: 10.1007/s10694-020-01089-4
69. C. Xiong, Y. Liu, C. Xu, X. Huang* (2021) *Acoustical Extinction of Flame on Moving Firebrand for Fire Protection in Wildland-Urban Interface*, **Fire Technology** (in press). doi: 10.1007/s10694-020-01059-w
68. S. Wang, P. Ding, S. Lin, X. Huang*, A. Usmani (2021) *Deformation of Wood in Fire: The Interaction between Heterogeneous Chemistry and Thermomechanical Stress*, **Proceedings of the Combustion Institute**, 38, 5081-5090. doi: 10.1016/j.proci.2020.08.060.

67. S. Lin, X. Huang* (2021) *Quenching of Smoldering: Effect of Wall Cooling on Extinction*, **Proceedings of the Combustion Institute**, 38, 5015-5022. doi: 10.1016/j.proci.2020.05.017
66. X. Zhang, X. Wu*, Y. Park, X. Huang*, T. Zhang, F. Xiao, A. Usmani (2021) *Perspectives of Big Experimental Database and Artificial Intelligence in Tunnel Fire Research*, **Tunnelling and Underground Space Technology**, 108 103691. doi: 10.1016/j.tust.2020.103691
65. J. Wang[#], W. Xing[#], X. Huang, X. Jin, H. Yu, J. Wang, L. Song, W. Zeng, Y. Hu* (2021) *Smoldering of storage rice: Effect of moldy degree and moisture content*, **Combustion Science and Technology** (in press). doi: 10.1080/00102202.2020.1813120

2020

64. Y. Liu, P. Sun, S. Lin, H. Niu*, X. Huang* (2020) *Self-heating ignition of open-circuit cylindrical Li-ion battery pile: Towards fire-safe storage and transport*, **Journal of Energy Storage**, 32, 101842. doi: 10.1016/j.est.2020.101842
63. C. Wu, P. Sun, X. Wang, S. Wang*, X. Huang* (2020) *Flame Extinction of Spherical PMMA in Microgravity: Effect of Solid Diameter and Conduction*, **Microgravity Science & Technology**, 32, 1065-75. doi: 10.1007/s12217-020-09829-5
62. P. Sun, C. Wu, F. Zhu, S. Wang*, X. Huang* (2020) *Microgravity Combustion of Polyethylene Droplet in Drop Tower*, **Combustion and Flame**, 222, 18–26. doi: 10.1016/j.combustflame.2020.08.032
61. S. Lin, X. Huang* (2020) *An experimental method to investigate the water-based suppression of smoldering peat fire*, **MethodsX**, 100934. doi: 10.1016/j.mex.2020.100934
60. X. He, F. Restuccia, Y. Zhang, Z. Hua, X. Huang, J. Fang, G. Rein* (2020) *Experimental Study of Self-heating Ignition of Lithium-Ion Batteries During Storage: Effect of the Number of Cells*, **Fire Technology**, 56, 2649-2669. doi: 10.1007/s10694-020-01011-y
59. J. He, X. Huang, X. Ning, T. Zhou, J. Wang*, R. Yuan (2020) *Stairwell smoke transport in a full-scale high-rise building: influence of opening location*, **Fire Safety Journal**, 117, 103151. doi: 10.1016/j.firesaf.2020.103151
58. P. Sun, S. Lin, X. Huang* (2020) *Ignition of Thin Fuel by Thermoplastic Drips: An Experimental Study for the Dripping Ignition Theory*, **Fire Safety Journal**, 115, 103006. doi: 10.1016/j.firesaf.2020.103006
57. Q. Xie, M. Gao, X. Huang* (2020) *Fire Risk and Behavior of Rice during the Convective Drying Process*, **Fire Safety Journal**, 115, 103013. doi: 10.1016/j.firesaf.2020.103013
56. S. Lin, Y.K. Cheung, Y. Xiao, X. Huang* (2020) *Can Rain Suppress Smoldering Peat Fire?* **Science of the Total Environment**, 138468. doi: 10.1016/j.scitotenv.2020.138468
55. X. Wu, Y. Park, A. Li, X. Huang*, F. Xiao, A. Usmani (2021) *Smart Detection of Fire Source in Tunnel Based on the Numerical Database and Artificial Intelligence*, **Fire Technology**, 57(2), 657-682. doi: 10.1007/s10694-020-00985-z
54. Q. Xie, Z. Zhang, S. Lin*, Y. Qu, X. Huang* (2020) *Smoldering fire of high-density cotton bale under concurrent wind*, **Fire Technology**, 56(4), 2241–2256. doi: 10.1007/s10694-020-00975-1
53. H. Niu, C. Chen, D. Ji, L. Li, Z. Li, Y. Liu, X. Huang* (2020) *Thermal-runaway propagation over a linear cylindrical battery module*, **Fire Technology**, 56, 2491–2507. doi: 10.1007/s10694-020-00976-0
52. Z. Song*, X. Huang*, C. Kuenzer, H. Zhu, J. Jiang, X. Pan, X. Zhong* (2020) *Chimney effect induced by smoldering fire in a U-shaped porous channel: A governing mechanism of the persistent underground coal fires*, **Process Safety and Environmental Protection**, 136, 136–147. doi: 10.1016/j.psep.2020.01.029
51. P. Sun, R. Bisschop, H. Niu, X. Huang* (2020) *A Review of Battery Fires in Electric Vehicles*, **Fire Technology**, 56, 1361–1410. doi: 10.1007/s10694-019-00944-3 Invited Review
50. X. Huang*, J. Gao* (2021) *A Review of Near-Limit Opposed Fire Spread*, **Fire Safety Journal**. 103141. doi: 10.1016/j.firesaf.2020.103141 Invited Review & Editor-in-Chief's Featured Article
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33. X. Huang*, G. Rein (2019) *Upward-and-downward Spread of Smoldering Peat Fire*, **Proceedings of the Combustion Institute**, 37: 4025–4033. [Top 10 Most Downloaded Articles of the Journal](#)
32. Y. Lu, X. Huang*, L. Hu*, C. Fernandez-Pello (2019) *The interaction between fuel inclination and forward wind: Experimental study using thin wire*, **Proceedings of the Combustion Institute**, 37: 3809–3816.
31. M. Thomsen, X. Huang, C. Fernandez-Pello, D. Urban, G. Ruff (2019) *Concurrent Flame Spread over Nomex under External Heating*, **Proceedings of the Combustion Institute**, 37: 3801–3808.

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29. S. Link, X. Huang*, C. Fernandez-Pello, S. Olson, P. Ferkul (2018) *The Effect of Gravity on Flame Spread over PMMA Cylinders*, **Scientific Reports**, 8, 120.
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2017

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25. Q. Liu, N. Liu, X. Huang (2017) *Radiative Heat Transfer from Multiple Discrete Fires*, **Journal of Fire Science** 35(6): 535-546.
24. Y. Kobayashi, X. Huang*, S. Nakaya, M. Tsue, C. Fernandez-Pello (2017) *Flame Spread over Horizontal and Vertical Wires: the Role of Dripping and Core*, **Fire Safety Journal**, 91: 112-122.
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21. G. Rein, X. Huang, F. Restuccia, T. McArdle (2017) *Detection of landmines in peat soils by controlled smouldering combustion: Experimental proof of concept of O-Revealer*, **Experimental Thermal and Fluid Science**, 88: 632-638.
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2016

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12. X. Huang, F. Restuccia, M. Gramola, G. Rein (2016) *Experimental Study of the Formation and Collapse of an Overhang in the Lateral Spread of Smouldering Peat Fires*, **Combustion and Flame** 168 (6): 393–402. [Sugden Best Paper Award from the Combustion Institute \(British Section\)](#)

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11. S. Wang, X. Huang, H. Chen, N. Liu, G. Rein (2015) *Ignition of Low-density Expandable Polystyrene Foam by a Hot Particle*, **Combustion and Flame**, 162 (11): 4112-4118.
10. D. Wu, X. Huang, F. Norman, F. Verplaetsen, J. Berghmansa, E. Van den Bulcka (2015) *Experimental investigation on the self-ignition behavior of coal dust accumulations in oxy-fuel combustion system*, **Fuel**, 160: 245-254.
9. X. Huang, G. Rein (2015) *Computational Study of Critical Moisture and Depth of Burn in Peat Fires*, **International Journal of Wildland Fire**, 24: 798-808.
8. X. Huang, G. Rein, H. Chen (2015) *Computational Smouldering Combustion: Predicting the Roles of Moisture and Inert Contents in Peat Wildfires*, **Proceedings of the Combustion Institute**, 35 (3): 2673-2681. [Top 25 Most Downloaded Articles](#)
7. K. Li, X. Huang, C.M. Fleischmann, G. Rein, J. Ji (2014) *Pyrolysis of Medium-Density Fiberboard: Optimized Search for Kinetic Scheme and Parameters via a Genetic Algorithm Driven by Kissinger's Method*, **Energy Fuels**, 28: 6130-39.
6. X. Huang, M. J. Gollner (2014) *Correlations for Evaluation of Flame Spread over an Inclined Fuel Surface*, **Fire Safety Science**, 11: 222-233.
5. X. Huang, G. Rein (2014) *Smouldering Combustion of Peat: Inverse Modelling of the Thermal and Oxidative Degradation Kinetics*, **Combustion and Flame**, 161 (6): 1633-1644. [Most Downloaded Article for 90 days](#)

4. X. Huang, Y. Nakamura, F. A. Williams (2013) *Ignition-to-Spread Transition of Externally Heated Electrical Wire*, **Proceedings of the Combustion Institute**, 34 (2): 2505-2512.
3. M. J. Gollner, X. Huang, J. Cobian, A. S. Rangwala, F. A. Williams (2013) *Experimental Study of Upward Flame Spread of an Inclined Fuel Surface*, **Proceedings of the Combustion Institute**, 34 (2): 2531-2538.
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1. G. Gong, X. Huang*, J. Wang, M. Hao (2010) *An Optimized Model and Test of the China's First High Temperature Parabolic Trough Solar Receiver*, **Solar Energy**, 84: 2230-2245.

PATENTS (PENDING)

- 1) X. Huang, S. Lin, A Novel Multi-Stage Combustor for Biowaste Reduction and Smoke Removal, China Patent, Application No. 201910522702.9
- 2) X. Huang, C. Xiong, Y. Liu, C. Xu, A Fire Protection System and Extinguishing Method based on Acoustic Fire Suppression, China Patent, Application No. 201911058483.X
- 3) P. Sun, C. Xu, X. Huang, Y. Jia, An experimental method of investigating dripping ignition and a system of generating dripping flame. China Patent, Application No. 202010284391.X
- 4) S. Wang, Y. Zhang, C. Xu, P. Sun, X. Huang, An experimental method and device to simulate the ignition behaviors by the high-temperature and high-speed particle, China Patent, Application No. 202010143225.8
- 5) X. Huang, C. Xiong, F. Haoran. The analytical method and system for 3D fire field information based on acoustic field variation, China Patent, Application No. 2020091200200110
- 6) X. Huang, T. Zhang, X. Wu, F. Xiao, Q. Wang, A. Usmani, A system, device and method to collect the real-time 3D data from the fire scene, China Patent, Ref. No. 348710306.
- 7) Q. Wang, X. Huang, M. Shaheer, T. Mohammad, X. Zhang, M. Luo, L.T. Hsu, X. Wu, F. Xiao, A. Usmani, Indoor Fire Monitoring Based on Look-Up-From-Floor Sensing of Ceiling, US Patent (17/445,737).
- 8) X. Huang, X. Zhang, L. Su, X. Wu, Y. Zeng, A method for evaluating fire engineering designs based on artificial intelligence and the apparatus, China Patent, Application No. 202111317179X.
- 9) X. Huang, X. Wu, X. Zhang, Y. Zeng, A. Usmani A methodology and system for fire monitoring based on artificial intelligence and digital twin, China Patent, No. 2021114957278

OTHER PROFESSIONAL SERVICES

Conference Committee/Organizer

- 14th International Symposium on Fire Safety Science, Tsukuba, Japan (2023)
- Fire and Climate Conference, Melbourne, Australia, June 6-10 (2022)
- 12th Asia-Oceania Symposium on Fire Science and Technology (AOSFST), Brisbane, Australia (2021)
- Asia-Pacific Conference on Combustion, Fukuoka, Japan (2019)
- Chinese Young Scholars Fire Forum (YSFF), Beijing, China (2018)
- China National Symposium on Combustion (2018 – 19)
- 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)

Conference Session Chair

- 12th Asia-Oceania Symposium on Fire Science and Technology (AOSFST), Brisbane, Australia (2021)
- 13th International Association for Fire Safety Science, Waterloo, Canada (2021)
- China National Symposium on Combustion (2018 – 19)
- Chinese National Young Scholar Meeting on Combustion (2018 – 21)
- 4th Asia Conference of International Building Performance Simulation Association (2018)
- 8th East Asia Mechanical Engineering Workshop, Hong Kong (2018)
- 10th US National Combustion Meeting (2017)
- 8th International Seminar on Fire and Explosion Hazards (2017)

Website Editor

- Intl. Association of Fire Safety Science (IAFSS) (2012 -)
- Combustion Institute, British Section (2014 – 15)

PEER REVIEW (> 50 Journals + 12 Reviewer Awards)

- Fire Technology #
- Proceedings of the Combustion Institute #
- Progress in Energy and Combustion Science
- Global Environmental Change
- Global Change Biology
- Applied Thermal Engineering #
- Energy Conversion and Management #
- Bioresource Technology #
- Journal of Hazardous Materials #
- Science of the Total Environment #
- Fire Safety Journal #
- Journal of Hydrology #
- Int. Journal of Heat and Mass Transfer #
- International Journal of Thermal Sciences #
- 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
- Combustion and Flame
- Fuel Process Technology
- Fuel
- Indoor and Built Environment
- Global Biogeochemical Cycles
- Energy & Fuel
- Fire Ecology
- Journal of Fire Science
- Applied Sciences
- Frontiers in Plant Science
- Building Simulation
- Frontiers in ICT
- Frontiers in Mech. 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
- Fire

Received Outstanding Reviewer Award

PROPOSAL REVIEWER

- 2020 – present National Natural Science Foundation of China (NSFC)
2017 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

- 2021.12 - present Dr. Khan, Aatif Ali (PolyU) *Structural Fire safety Analysis with AI and Big Data*
2021.9– present Dr. Rahul Wadhvani (Victoria) *Smart firefighting for wildland urban interface*
2021.9– present Dr. Lin, Shaorun (PolyU) *Early detection of peat wildfires via AI methods*

2021.9– present	Dr. Yuxin Zhang (Tongji)	<i>Fire Evacuation using artificial intelligence</i>
2021.1 – present	Dr. Yuan, Han (Imperial)	<i>Numerical modelling on smoldering fire</i>
2021.1 - present	Dr. Liang, Zhirong (BUAA)	<i>Emission characteristics of biomass combustion</i>
2019.6 – present	Dr. Xiong, Caiyi (USTC)	<i>Acoustic Effect on Diffusion Flame</i>
2019.8 – 2020.8	Dr. Wang, Supan (USTC)	<i>Thermochemical Analysis of timber Fire</i>
		<u>Current position:</u> Associate Professor at Nanjing Tech University
2019.10 – 2020.8	Dr. Wu, Xiqiang (HKU)	<i>Machine-Learning Based Fire Modelling for Smart Firefighting</i>
		<u>Current position:</u> Research Assistant Professor at PolyU

PHD/MPHIL ADVISING EXPERIENCE AS CHIEF SUPERVISOR (PolyU)

2018 – 2021	Dr. Lin, Shaorun	<i>Fundamental Study of Near-Limit Smoldering Fire Dynamics</i>
		<u>Current position:</u> Postdoc Fellow at PolyU
2019 – 2022	Sun, Peiyi	<i>A fundamental study on the dripping fire hazards</i>
2019 – 2025	Su, Lingchu	<i>Artificial Intelligence on the Performance-Based Fire Design</i>
2020 – 2023	Chen, Yuying	<i>Smoldering Processing for Solid Waste Removal</i>
2020 – 2023	Wang, Zilong	<i>AI-based Smart Firefighting and Risk Assessment</i>
2021 - 2023	Zhang, Xiaoning	<i>A study on AIoT-based smart firefighting system for tunnel fire safety</i>
2021 - 2024	Liu, Yanhui	<i>A fundamental study of lithium-ion battery fire safety under extreme environment</i>
2021 - 2024	Zeng, Yanfu	<i>AI-based Smart Firefighting System for Complex Buildings</i>
2021 - 2025	Li, Yizhou	<i>Wildfires Forecast Based on Artificial Intelligence and UAV thermal</i>
2021 - 2025	Qin, Yunzhu	<i>Numerical modelling of near-limit smoldering combustion</i>
2021 - 2023	Wong, Ho Yin	<i>Smart AIoT System for Smart Firefighting</i>

PHD ADVISING EXPERIENCE AS CO-SUPERVISOR (4 on-going students)

2019 – 2021	Orabi, Anwar	<i>Structural analysis of large structures subject to fire</i>	(w/ Prof. A. Usmani) PolyU
		<u>Current position:</u> Postdoc Fellow at PolyU	
2019 – 2021	Khan, Aatif Ali	<i>An Open Computational Framework for simulating structural response to real fires</i>	(w/ Prof. A. Usmani) PolyU
		<u>Current position:</u> Postdoc Fellow at PolyU	
2020 – 2023	Zhang, Tianhang	<i>Smart Firefighting System for Tunnel Fire</i>	(w/ Prof. Fu Xiao) PolyU
2020 - 2023	Dayang Nur Sakinah binti Musa	<i>Smoldering Peat Fire Behaviour and Extinction Mechanism</i>	(w/ Zahirasri bin Mohd Tohir) Universiti Putra Malaysia

OTHER ADVISING EXPERIENCE (×16)

2022	Joshua Khai (Toyohashi Tech, Japan): <i>Fire risks of electric vehicle vs. conventional vehicles</i>
	Yamazaki Shun (Toyohashi Tech, Japan): <i>Trend of Wildland fires in Japan and impact factors</i>
2021	Gulzhan Aldan (BEng student, PolyU): <i>Immersing cooling efficiency for preventing battery thermal runaway</i>
	Wilson Wai Kit Cheung (BEng student, PolyU): <i>Modelling CO from Smoldering fire in large open spaces</i>
2020	Siyan WANG (BEng student, PolyU – Now PhD Student at UC Berkeley with full scholarship): <i>Ignition of wildfire by concentrated solar radiation</i>
	Yau Kuen (Daniel) CHEUNG (BEng student, PolyU): <i>Suppression of peat fire by rain</i>
	Haoran FAN (MSc student, PolyU – Now RA): <i>Acoustic interaction of flame</i> Distinction
2019	Yanhui LIU (MEng student, PolyU – Now RA): <i>Self-heating ignition of Li-ion batteries</i> Distinction
	Xiaoning Zhang (MEng student, PolyU – Now PhD student): <i>A study of tunnel fire database</i> Distinction
2018	Yang XIAO (MEng student, PolyU): <i>The drying process of porous fuel under flame radiation</i>

- 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 MSc student at ETH Zurich): *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 in UCB): *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 PhD student): *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*