

CURRICULUM VITAE

Dr Anthony Chun Yin Yuen

Office address: ZS871, Building Z
The Hong Kong Polytechnic University
Tel. no.: +852 2766-8289
Email: anthony-cy.yuen@polyu.edu.hk
Personal website: <https://www.acyyuen.com>

BIOGRAPHY

I am currently appointed as an Assistant Professor, Presidential Young Scholar at the Hong Kong Polytechnic University in Hong Kong SAR and an Adjunct Lecturer at UNSW Sydney Australia. Before joining HKPolyU, I was previously appointed as Lecturer/Centre Manager for the ARC Training Centre for Fire Retardant Materials and Safety Technologies (Centre link: <https://www.fire.edu.au>). My research focuses on the development of computational material science modelling techniques to deliver in-depth characterisations of the atomistic physiochemical behaviours of nanocomposites such as interfacial and surface science reactions between molecules. In addition, my research also contributes to the fabrication of novel, bio-inspired and multifunctional nano-architected composite materials. Now I am aiming to synergise my expertise to formulate a systematic, state-of-art fire assessment platform to effectively and physically described the flaming and degradation processes, thermal/electrical conductivities, charring and self-extinction behaviours of advanced materials.

Qualifications and working experiences: I graduated in January 2015 with a PhD from the School of Mechanical and Manufacturing Engineering, University of New South Wales (UNSW), Australia, supervised by Prof. Guan Heng Yeoh, and I am currently a Lecturer and the Centre Manager for the ARC Training Centre for Fire Retardant Materials and Safety Technologies in UNSW. I specialise in the development of advanced bio-inspired functional materials with experimental characterisations combined with unique computational realisation techniques. Recently, my research has also contributed to the development of 3D additive manufactured flame retardant composites utilising extruded biobased polymer filaments with nano-fillers and binders, which will lead to breakthroughs in fire retardant research over the coming decades.

Research and outputs: I carry out research on the fundamental polymer degradation and computational materials synthesis modelling of bio-inspired flame retardants and advanced multifunctional nanocomposites. I focus on the development of novel simulation approaches to enhance the reliability and capability of Molecular Dynamics (MD) and computational multiphase fluid dynamics (CMFD) models. I have applied my self-written models and kinetics search algorithm codes on a range of topics across fire safety science topics including characterisation/decomposition kinetics for polymer composites, MD on polymer degradation, infrastructure and wildland fire modelling and in-depth realisation of flame retardant mechanisms. Now I am aiming to synergise my expertise to formulate a systematic, state-of-art fire assessment platform to effectively and physically described the fundamental flaming and degradation processes, charring and self-extinction behaviours of polymer composites. I have published **>125 journal articles, 3 book chapter** and **>20 conference papers** and have **>3,500** total citations. As of March 2022, my **H-Index is 35 in Google Scholar, 27 in Web of Science, 30 in Scopus, 29 in SciVal.**

Fundings and supervisions: As an early career researcher, I have actively contributed towards **AUD \$11.96 million in research funding** including **AUD \$11.62 million from external grants** (ARC Discoveries, CRC-Ps, CRC Bushfire Tactical Research Fund, Innovation Connections, etc.), after I started my academic career at UNSW Sydney from 2015-2023. In addition to my research outputs, I am also an effective supervisor, evidenced by the timely completion and rich publication records of the HDR candidates under my supervision. I have graduated 6 PhDs, 3 Masters by Research and 5 Honours students to completion. I am also currently supervising 3 PhD candidates and they are on track for submissions within their expected candidatures.

Teaching: Since joining the Hong Kong Polytechnic University (PolyU HK), I have been involved in teaching in three courses (i.e. BSE2215 Fluid Mechanics; BSE3713 Research Methods in Building Services Engineering; BSE574 Research Methods), in which I have received 4.4/5 for SFQ score for BSE2215 in 2022-23 Semester 2. During my time at UNSW, I have been appointed as the “Course Convenor” for the course “MECH4620 - Computational Fluid Dynamics” since 2017. My responsibility includes (i) designing the outline and schedule for the course; (ii) delivering weekly-based lectures; (iii) assigning tutors for laboratory sessions; (iv) preparing assignments, major projects, online working tutorials and examination papers; (v) organising face-to-face consultation sessions and administrating online discussion forums. Previously, I have gained substantial experience in teaching and related activities at UNSW as the Leading Tutor of the courses MATH 2089 – Numerical Methods and MECH 4620 – Computational Fluid Dynamics fully responsible for coordinating, tutoring, meeting and discussing for enhancement of lecture materials and assignment for the betterment of students’ learning experiences. I led as the Main Course Developer for the self-learning/online package (i.e. online lessons for 10 weeks, 5 adaptive ANSYS CFX & FLUENT tutorials, 3 online assignments and 1 online mid-term test) on the online platform - “SmartSparrow” for MECH 4620 – Computational Fluid Dynamics. **(Teaching Evaluation 5.77/6.00 and Overall Course Marks 5.53/6.00 for 2019 T3 [1 to 6 from strongly disagree to strongly agree])**

Technology transfer, services to industry and awards: In collaboration with the Fire Research Unit of Fire & Rescue, New South Wales, Australia, I contributed my expertise in fire field models to aid the fire investigation of a tragic fire incident in an aged-care facility causing 14 fatalities. For the first time, in Australia, the numerical results were presented as evidence in court to convict the suspect for the arson fire. I have been actively involved in the development of the Online Fire Safety Training Tool: E-fire Investigation (<http://www.efireinvestigation.com.au/>) for firefighters to understand the compartment fire development relating to fire loads. Additionally, under the ARC Training Centre for Fire Safety 2017-present, I have been consistently working with more than 6 partnering organisations annually (government agencies, material and engineering industries) for a range of research and development topics in fire safety materials and technologies.

PERSONAL INFORMATION

Date of Birth: 2 July 1988
 Place of Birth: Hong Kong
 Nationality: Hong Kong Citizen

ACADEMIC AND PROFESSIONAL QUALIFICATIONS

Qualification	School / University	Period
Secondary School (A-level)	Dauntsey School, United Kingdom	Sep 2005 – Sep 2007
Bachelor of Engineering in Mechanical Engineering (Building Services Engineering)	Department of Mechanical Engineering, The University of Hong Kong	Sep 2007 – Sep 2010
PhD (Mechanical Engineering)	School of Mechanical and Manufacturing Engineering, University of New South Wales	Oct 2010 – Jan 2015
Student Member	Hong Kong Institution of Engineers	Sept 2008 – present

RESEARCH INTERESTS

- Additive Manufacturing Materials
- Advanced Functional Materials
- Advanced Thermofluids
- Bioinspired Polymer Composites
- Computational Fluid Dynamics (CFD)
- Computational Material Synthesis
- Detailed Chemistry Combustion
- Fire Dynamics
- Heat Transfer
- Machine Learning Algorithms
- Material Characterisation
- Nanocomposite Fire Retardants

EMPLOYMENT HISTORY

Lecturer/Centre Manager (Level B Step 4-6 of Lecturer scale), UNSW *April 2021 – Present*

- Course development, coordination, and teaching for MECH4620, MATH2089
- Design Course supervision for the MANN4100, ENGG3060 for fire and protection systems topics
- Supervising PhD students and ensuring high-quality research outputs in all six major research areas for the ARC Training Centre for Fire Retardant Materials and Safety Technologies

Centre Manager, UNSW *Oct 2018 – March 2021*

- Managing daily operation and research activities under the centre
- Organising regular industrial and academic panel meetings to setup quarterly milestones and objectives
- Purchase equipment, design and modification of the Fire Safety Testing Laboratory at the School of Mechanical and Manufacturing Engineering, UNSW
- Knowledge transfer to the industry and training for fire-fighters

Course Convenor, UNSW *Jul 2017 – present*

Computational Fluid Dynamics (MECH 4620)

- Update, organise and development for the course to improve the outline materials, student learning process, recently-developed modelling techniques
- Preparation and delivery of weekly-based lectures
- Preparation and design of assignment questions, exam paper
- Implementation of new online features including online assignments and working CFD tutorials

Post-doctoral Research Associate, UNSW *Jan 2015 – Sep 2018*

- Assisting, preparing and writing research proposals
- Investigating the resistance of the fire retardant, swirling fire phenomena and bush fire through the application of numerical simulations
- Development of the radiation model to account for the interaction between fuel consumption to the radiative heat absorption of the flame

Course Developer for the SmartSparrow Online Learning System *Dec 2016 – July 2017*

Computational Fluid Dynamics (MECH 4620), UNSW

- Constructing online lecture materials covering the major CFD topics including governing equations, finite volume method, numerical methods, solution procedures and concepts of turbulence models, etc
- Creating online interactive questions and CFD working examples (i.e. ANSYS CFX and FLUENT case studies) to increase the learners' adaptiveness and interests
- Design of the scoring and feedback systems, as well as the time limit for online tests, assignments
- Delivering online lectures and providing instructions for students to implement the adaptive learning system

Expert Witness for Fire Research Unit, FRNSW *Mar 2013 – Sep 2013*

New South Wales, Australia

- Participant in a court case as an expert witness for a fire scene investigation study
- Case discussions to offer expert advice
- Performing fire field model simulations to aid the fire investigation study of a tragic fire incident in an aged-care facility that causes 14 fatalities
- Analysis and present numerical results to facilitate examinations in court

Internship, Arup & Partners Hong Kong Ltd, Hong Kong *Jun 2009 – Sep 2009*

- Evaluation of airflow rate of the smoke extraction system in a train road tunnel
- Simulating smoke movement of a compartment fire scenario in a large shopping arcade using the commercial software, Fire Dynamics Simulator (FDS)
- Investigating the influence of smoke layer on visibility
- Constructing drawings of combined utility services (i.e. pumping and drainage, electricity and fire services)

KEY SKILLS

Languages

- English, Mandarin and Cantonese

Computational Skills

- High-level computer languages: FORTRAN, Python, Language C++ and MATLAB
- CFD simulation software: ANSYS CFX, ANSYS Fluent, OpenFOAM and Fire Dynamics Simulator
- Molecular Dynamics: LAMPS, PACKMOL, ReaxFF
- Combustion kinetics software: CHEMKIN, ANSYS Fluent
- Drawing software: Autodesk AutoCAD, SolidWorks
- Presentation software: Tecplot360, MATLAB, PowerPoint, Word, Excel and Photoshop

Engineering Skills

- Building Services Engineering Design and Practices (Mechanical and Electrical Services and Projects)
- Professional engineering drawing skills gained from final year building services design project
- Numerical simulations and modelling techniques using CFD codes or commercial software

RESEARCH GRANTS

I have been actively participating in research grant applications. My total research funding sums up to **\$11.96 million (\$11.62 million in external grants)**, since joining UNSW Sydney as a Post-doctorate Fellow in 2015 followed by my appointment as Lecturer in 2021. These successful applications demonstrate my capability to obtain research income including nationally competitive research grants, fellowships, and university level funding, as a core member. The highlights of my research income are as follows:

Competitive External Research Grants	AUD	Awarded Period
1. Guan Heng Yeoh, Bijan Samali, Hao Wang, Gilian Yeo, Sean Li, Anthony Chun Yin Yuen , et al. (total 31 CIs), ARC Research Hub for Fire Resilience Infrastructure, Assets and Safety Advancements (FRIASA) in Urban, Resources, Energy and Renewables Sectors	4,997,000	2023 (onwards)
2. Anthony Chun Yin Yuen , Guan Heng Yeoh, Innovation Connection 2022 , Development of Fire Retardant and Non-Combustible Coatings for Signage (ICG001937 - Cooper Neon Pty Ltd).	74,700	2022 - 2023
3. Guan Heng Yeoh, Anthony Chun Yin Yuen , Jaime Grunlan, ARC Discovery Project (DP22) , Engineered interlayers of bio-retardant and nano-reinforcement on polymers.	332,000	2022 - 2024
4. Guan Heng Yeoh, Anita Ho-Baillie, Chun Wang, Anthony Chun Yin Yuen , Cooperative Research Centres-Projects (CRC-P Round 8) : Solar Skin: Next generation perovskite solar polymer membrane.	3,000,000	2020 - 2022
5. Victoria Timchenko, Anthony Chun Yin Yuen , Guan Heng Yeoh, Project CONDOR - NSW techvoucher project , CFD Study on Propeller Thrust via Flow and Turbulence Characterisation, funded by ANGLO PACIFIC IMPORT EXPORT PTY LTD.	90,000	2019 – 2020
6. Guan Heng Yeoh, Chun Wang, Anthony Chun Yin Yuen , Shaun Chan, Cyrille Boyer, Vicki Chen, Cooperative Research Centres-Projects (CRC-P Round 5) : Non-toxic, durable and eco-friendly fire-retarded textiles and fabrics.	3,000,000	2018 – 2021
7. Guan Heng Yeoh, Shaun Chan, Anthony Chun Yin Yuen , Jeremy Fewtrell, Greg Buckley, Graham Kingsland, David O'Brien, Morgan Cook, Kim Thai, Bushfire & Natural Hazards CRC Project Management Plan : A strategic analysis of risks associated with non-complying building products.	100,000	2018 – 2019

Internal Grants	AUD	Awarded Period
8. Anthony Chun Yin Yuen , Guan Heng Yeoh, Shaun Chan, Wei Wang, Eric Wai Ming Lee, Nadia Chek Lun Chow, UNSW International Seed Grant 2021 , Artificial Neural Network Modelling Integrated with Molecular Dynamics Data for Detailed Description of CFD Pyrolytic Process.	5,000	2021 (ongoing)
9. Guan Heng Yeoh, Shaun Chan, Anthony Chun Yin Yuen , MME Collaborative Research Infrastructure Scheme 2021 , High-speed camera for next-generation fire retardant/safety technologies and engine combustion research.	50,000	2021 – 2022
10. Guan Heng Yeoh, Anthony Chun Yin Yuen , Shaun Chan, UNSW-SJTU Collaborative Research Seed Grants : Formation and evolution of soot in flames based on laser diagnostics and high-fidelity models.	10,000	2020 - 2021
11. Guan Yeoh, Shaun Chan, Anthony Chun Yin Yuen , Chun Wang, Shuying Wu, UNSW MME Collaborative Research Infrastructure Funding : Micro-scale calorimeter: A powerful tool for next-generation fire retardant materials and safety technologies research.	50,000	2017
12. Guan Heng Yeoh, Chun Wang, Evatt Hawkes, Shawn Kook, Shuan Chan, Shuying Wu, Anthony Chun Yin Yuen , Veena Sahajwalla, Farshid Pahlevani, Vicki Chen, Research Infrastructure Scheme : Advanced automatic interactive cone calorimeter for flammability test of novel bio-inspired fire retardant and green materials and durable coatings.	330,000	2017

EDITORSHIP AND REVIEW EXPERIENCES

The following is the list of editorships experiences I have in SCI journals:

- Special issue editorship in the journal *Sensors* topic entitled "Internet of Things and Sensors in Smart Battery and Energy Storage Management Systems"
https://www.mdpi.com/journal/sensors/special_issues/56BN580413
- Special issue editorship in the journal *Polymers* topic entitled "IAvance in Polymer-Based Flame Retardant Materials"
https://www.mdpi.com/journal/polymers/special_issues/Advance_Polymer_Based_Flame_Retardant_Materials
- Special issue editorship in the journal *Fire* topic entitled "Computational Insights into Fire Safety: Modelling, Simulation, and Innovative Solutions"
https://www.mdpi.com/journal/fire/special_issues/K0GR26L050
- Lead and solo special issue editorship in the journal *Molecules* topic entitled "New Prospects in Flame-Retardant Materials"
https://www.mdpi.com/journal/molecules/special_issues/Flame_Retardant_Materials

I am also contributing to my research area as an active reviewer, with >150 papers reviewed in highly received journal articles, which include Applied Energy, Chemical Engineering Journal, Composites Part B: Engineering, Fuel, Proceedings of the Combustion Institute, International Journal of Heat and Mass Transfer, Journal of Analytical and Applied Pyrolysis.

HIGHER DEGREE RESEARCH SUPERVISION EXPERIENCES

Currently, I am actively involved in research supervision and mentorship of higher degree research students. Under my supervision, I have 6 HDR student completions including 3 PhDs and 4 Master by Research students. I am currently mentoring 7 PhD candidates (i.e. 6 Joint Supervision). I supervise research topics related to fundamental fire modelling approaches, fire safety science, novel developments of flame retardant and multifunctional polymer composites involving (i) developing multi-scale fire predictive models for combustible materials, (ii) creating a population balance approach for soot particles distribution modelling, (iii) developing organic hybrid fire retardants with bio-inspired materials (iv) developing a human behavioural based evacuation model, (v) studying innovative fire suppression strategies, (vi) electrochemical thermal runaway behaviour of lithium batteries and (vii) atomistic degradation/decomposition of polymer composites.

Name	Candidature Year	Degree	Thesis Title
1. Hengrui Liu	Completion 2023	PhD	Development of Innovative Fire Suppression Systems and Risk Mitigation Approaches with Multiphase Flow Techniques
2. Bo Lin	Completion 2023	PhD	Development of Flame Retardant and Antibacterial Dual Functionalised Flexible Polyurethane Foam
3. Ruifeng Cao	Completion 2022	PhD	Development of a Dynamical Egress Behavioural Model under Building Fire Emergency
4. Timothy Bo Yuan Chen	Completion 2022	PhD	Multi-scale Fire Modelling of Combustible Building Materials
5. Hengrui Liu	Completion 2023	PhD	Innovative Fire Suppression and Fire Control Approaches
6. Bo Lin	Completion 2023	PhD	Development of bio-inspired fire-retardant materials
7. Ao Li	Completion 2023	PhD	Numerical investigation on thermal propagation and fire safety performance of lithium-ion battery systems
8. Preety Dooley	3.00	PhD	Establishing smoke and toxicity criteria for fire testing and standards of polymer composites
9. Jing Liang	3.00	PhD	Development of novel bio-inspired flame retardant nanocomposites coating materials
10. Md Delwar Hossain	3.00	PhD	Developing fire testing protocols for lightweight cladding composites
11. Ivan Miguel De Cachinho Cordeiro	2.00	PhD	Molecular Dynamics of Nano-sheet coated polymer composites
12. Luzhe Liu	Completion 2021	MPhil	Assessment on the flammability of cladding materials via advanced pyrolysis kinetics search algorithms coupled with CFD simulations
13. Ivan Miguel De Cachinho Cordeiro	Completion 2021	MPhil	Molecular Dynamics of Nano-sheet coated polymer composites
14. Cheng Wang	Completion 2020	PhD	The Development and Implementation of a Population Balance Method-Based Soot Model in Diffusion Flames
15. Ao Li	Completion 2019	MPhil	Numerical Study of Condensation Effect on a Steam Ejector by Wet Steam Model
16. Timothy Bo Yuan Chen	Completion 2018	MPhil	Numerical simulation of fire spread using the level-set method with detailed chemical kinetics combustion model

INVITED LECTURES AND PRESENTATIONS

The following summarises the details of my experiences with invited keynote, lectures and presentations:

Seminar Title	Invited by	Location	Date
Recent Materials and Modelling Advancements for Lithium-Ion Batteries – Towards Machine Learning Assisted Thermal Management Systems Hybridizing Smart Materials	HKIE Fire Division	Meeting Room S421, Hong Kong Convention and Exhibition Centre	May 2023
HKIE – FIRE SCIENCE section – Applications of FDS in Practical Fire Simulations	HKIE Fire Division	Online Seminar (due to COVID-19 travel restrictions)	Feb 2021
Fire Dynamics Simulator (FDS) simulation for Building Smoke Extraction System Design	HKIE Fire Division	Hong Kong Fire Department, Hong Kong, China	Jan 2018
Applications of the Fire Dynamics Simulator (FDS) in Fire Investigation and Whirling Fire Studies	Dr. Young, Wong (ARUP Director)	Arup & Partners Hong Kong, Hong Kong, China	July 2017
Application of Large Eddy Simulation based Fire Field Models in Compartment Fire Simulations", Department of Mechanical and Mechatronics Engineering	Prof. Elizabeth, Weckman	University of Waterloo, Canada	April 2016
Keynote Seminar: A numerical study of multiple smoke vents for large halls.	Organising Committee	7th ICFSFPE Engineering, Guangzhou, China	Dec 2015

In order to gain an international reputation as a fire researcher, I have been actively participating in international conferences to present my work and exchange knowledge with other researchers in my field. Up-to-date, I have personally attended over 10 international conferences in various locations including Australia, China, Hong Kong, Japan, the United States and the United Kingdom. The following table summarises the details of all conference proceedings I have participated in:

COLLABORATIONS AND PARTNERSHIPS

I am active in establishing and maintaining linkages between the university and industry partners. In particular, through my role as the Centre Manager of the ARC Industry Transformation Centre for Fire Retardant Materials

and Safety Technologies between 2017 and 2020, I have engaged with at least six or more industrial partners at any year to participate in our Research and Industry Transform Activities (see **Table 4**).

Table 4: List of collaborating industrial partners from 2017 to 2021.

2017	2018	2019	2020	2021
AdapAFire	AdapAFire	AdapAFire	ARUP	ARUP
Amber Power	AFAC	AFAC	CORIN Australia	Cooper Neon
AusEng	AusEng	ARUP	CSIRO	CSIRO
AFAC	CSIRO	CSIRO	CSR Limited	CSR Limited
CSIRO	CSR Limited	CSR Limited	Flame Security	Flame Security
FRNSW	Flame Security	Flame Security	International	International
Landlease	International	International	FRNSW	GHD Group
PJBowers	FRNSW	FRNSW	Landlease	FRNSW
Regina Fire	Landlease	Landlease	NOVAPHARM	Landlease
Toshiba	PJBowers	PJBowers	PJBowers	PJBowers
WSP	Regina Fire	Regina Fire	Regina Fire	Regina Fire
	WSP	WSP	WSP	WSP

Through regular meetings in the industrial partnership board, I have established a strong relationship with our industrial partners. This has facilitated additional opportunities in industry-driven research projects (i.e. CRC-P, CRC Bushfire Tactical Research Fund, ARC Industrial Transformation Centre; in Application for 2020 round 1: ARC Discovery and ARC Linkage). Furthermore, with our collaboration providing opportunities for our Centre researchers to take the role as internship students in the industry, I have successfully trained students to continue their engineering careers as full-time employees in our partner organisation (i.e. WSP).

INTERNATIONAL CONFERENCES EXPOSURES

PERSONAL APPEARANCE WITH PRESENTATION		
Paper title	Conference Name	Conference Location / Date
Implementing atomistic modelling approach for pyrolytic fire development and gas evolutions of flame retardant polymer composites (Keynote)	7th International Symposium on Fire-Retardant Materials & Technologies (ISFRMT 2022)	Beijing, China, 23-25 Sep 2-22
Creating a systematic experimental/numerical integrated framework for building polymers flammability and toxicity analysis	12th Asia-Oceania Symposium on Fire Science and Technology (AOSFST 2021)	Brisbane, Australia, 7-9 Dec 2021
Numerical study of enclosure heat and gas species migration from cladding fires incorporating Artificial Neural Network	12th Asia-Oceania Symposium on Fire Science and Technology (AOSFST 2021)	Brisbane, Australia, 7-9 Dec 2021
Numerical study of surface regression of a flame retarded expandable polystyrene	25th Australasian Conference on Mechanics of Structures and Materials (ACMSM25)	Brisbane, Australia, December 4-7, 2018
Modelling of organic flame retarded polymers in building fires	11-th Asian-Australian Conference on Composite Materials (ACCM-11)	Cairns, Australia, Jul 29-1, 2018
Numerical simulation of the driving mechanisms of fire whirls using large eddy simulation	Engineering Mechanics Institute Conference (EMI 2017)	UC San Diego, US, June 4-7, 2017
Investigation of the pyrolysis kinetics and burning characteristics for Australian standard furniture materials	Engineering Mechanics Institute Conference (EMI 2017)	UC San Diego, US, June 4-7, 2017
Numerical study on small-scale fire whirl using large eddy simulation	3 rd International Conference on Fluid Flow, Heat and Mass Transfer	Ottawa, Canada / May 2-3, 2016
A numerical study of multiple smoke vents for large halls (Invited Presentation)	7 th International Conference on Fire Science and Fire Protection Engineering	Guangzhou, China / Dec 2015
Large eddy simulation in a large test hall	12 th International Symposium of Computational Heat Transfer	Bath, UK / July 2012
IN ATTENDANCE		
Paper title	Conference Name	Conference Location / Date
Intercalation and functionalization of MXene for flame retardant polymer nanocomposites	11-th Asian-Australian Conference on Composite Materials (ACCM-11)	Cairns, Australia, Jul 29-1, 2018
Numerical Modelling of Pyrolysis, Ignition and Combustion of Burning of Flame-Retardant Polystyrene	1 st Asia-Oceania Symposium on Fire Safety Materials Science and Engineering	Suzhou, China / Oct 2015
(Attendance only)	10 th Asia-Oceania Symposium on Fire Science and Technology	Tsukuba, Japan / Oct 2015

AWARDS

- Runner-up of the AOSFST 2021 Best Presentation Award in the 12th Asia-Oceania Symposium on Fire Science and Technology 2021
- Best Papers Award for section “Computational Fluid Dynamics 3” in 15th International ATE-HEFAT 2021 Conference Symposium 2021
- Best Papers Award for section “Nuclear Energy” in 15th International ATE-HEFAT 2021 Conference Symposium 2021
- Certificate of Appreciation by Natural Hazards CRC Program 2021
- First price award for the Makers Game (ENGG3060) Design Project participating as the academic mentor in collaboration with Jabobs Engineering for Smart Fire Sprinklers 2020
- Hong Kong Institution of Engineers (HKIE) Certificate of Acknowledgement for key-note Seminar talk for Fire Engineering Division 2019
- Distinguished speaker award for the Hong Kong Institution of Engineers (HKIE) Fire Engineering Division 2017
- Daikin Scholarship for outstanding performance in Building Design Project 2010
- Daikin Scholarship for outstanding performance in Applied Research Project 2010

MEDIA INTERVIEWS AND EXPOSURES

- Interview article on Sydney Morning Herald: "[Nuclear scientists think they've cracked the key to fighting fire in Australia,](#)" 2022
- News article on AuManufacturing newsletter: "[Research Shows Usefulness of New Class of Materials in Beating the Heat,](#)" 2022
- News article on ANSTO News: "[Investigating a prospective light-weight fire retardant material with superior properties,](#)" 2022
- Interview article on The Guardian: "[Why are Sydney buses still going up in flames and what can be done about it?](#)" 2021

PUBLICATIONS

My research focuses on the development of novel simulation approaches to enhance the reliability and capability of computational fluid dynamics based models. I have applied my self-written code on a range of topics across fire safety science including forensic fire investigations, bushfire and fire whirl modelling, characterisation/decomposition kinetics for polymers. In addition, my research also contributes to the development of bio-inspired and multifunctional nano-composite flame retardants. Now I am aiming to synergise my expertise to formulate a systematic, state-of-art fire assessment platform to effectively and physically described the fundamental flaming and degradation processes, charring and self-extinction behaviours of flame retarded polymers. The following are my key research performance highlights since my Postdoctoral employment:

- As of March 2022, I have **>150** research publications with **>125** journal articles, **3** book chapter and **>20** conference papers
- As of March 2022, my H-Index is **35** in Google Scholar with **>3,500** citations, H-index of **30** in Scopus, **27** in Web of Science, **29** in SciVal
- My field weighted citation impact (FWCI) is **2.9** (2021) [Source: SciVal], and my source normalised impact per paper (SNIP) is **1.53** (2021). [Source: UNSW Boris]
- I have published **4 highly cited papers** from 2017-2021 (**top 1%** cited of the academic field)
- I have published **26 in the top 10% journal by SJR** from 2017-2021 according to Scopus

The following is my publication list included with journal ranking in terms of their corresponding categories based on Journal Citation Reports powered by Clarivate:

(i) Refereed journal articles

1. A. Li, J. Weng, **A. C. Y. Yuen***, W. Wang, H. Liu, E. W. M. Lee, J. Wang, S. Kook, G. H. Yeoh, Machine learning assisted advanced battery thermal management system: A state-of-the-art review, *Journal of Energy Storage*, Vol. 60, pp. 106688, 2023. [2022 IF = 9.4; 19/195 Q1 in ENERGY & FUELS]
2. H. Liu, I. M. De Cachinho Cordeiro, **A. C. Y. Yuen***, C. Wang, A. Li, G. H. Yeoh. Numerical modelling of wet steam infused fluid mixture for potential fire suppression applications. *Experimental and Computational Multiphase Flow*. Vol. 5, pp. 142–148. 2023. [2022 IF = 6.5; 13/77 Q1 in THERMODYNAMICS]
3. J. Liang, W. Yang, **A. C. Y. Yuen***, I. M. De Cachinho Cordeiro, S. Qiu*, J. Zhang, W. Wu, Y. Hu, G.H. Yeoh, A novel green IFR system: Design of a self-assembled peanut shell-based flame retardant and its fire performance in EP, *Progress in Organic Coatings*, Vol. 174, pp. 107277, 2023. [2022 IF = 6.6; 2/21 Q1 in MATERIAL SCIENCE, COATING & FILMS]
4. I. I. Kabir*, J. C. Baena, W. Wang, C. Wang, S. Oliver, M. T. Nazir, A. Khalid, Y. Fu, **A. C. Y. Yuen**, G. H. Yeoh, Optimisation of Additives to Maximise Performance of Expandable Graphite-Based Intumescent-Flame-Retardant Polyurethane Composites. *Molecules*, Vol. 28, pp. 5100, 2023. [2022 IF = 4.6; 98/285 Q2 in BIOCHEMISTRY & MOLECULAR BIOLOGY]
5. J. C. Baena*, C. Wang, I. I. Kabir, A. Khalid, M. T. Nazir, **A. C. Y. Yuen**, F. Ahmad, G. H. Yeoh, Fire behaviour of waterborne intumescent coatings on timber substrate for bushfire exposure, *Fire Safety Journal*, Vol. 140, pp. 103836, 2023. [2022 IF = 3.2; 59/139 Q2 in ENGINEERING, CIVIL]
6. M. D. Hossain, M. K. Hassan*, S. Saha, **A. C. Y. Yuen**, C. Wang, Laurel George, Richard Wuhrer Thermal and Pyrolysis Kinetics Analysis of Glass Wool and XPS Insulation Materials Used in High-Rise Buildings. *Fire*, Vol. 6, pp. 231, 2023. [2022 IF = 3.2; 10/69 Q1 in FORESTRY]
7. N. Chulikavit, T. Huynh, C. Wang, **A. C. Y. Yuen**, A. Khatibi, A. Mouritz, E. Kandare*, Engineering mycelium fungi into an effective char-forming thermal protection material via alkaline deacetylation, *Polymer Degradation and Stability*, Vol. 212, pp. 110355, 2023. [2022 IF = 5.9; 8/86 Q1 in POLYMER SCIENCE]
8. X. Cao, J. Huang, Z. Tang, Y. Tong, **A. C. Y. Yuen***, W. Zhao, Q. Huang, R. K. Y. Li, W. Wu*, Self-assembled biobased chitosan hybrid carrying N/P/B elements for polylactide with enhanced fire safety and mechanical properties, *International Journal of Biological Macromolecules*, Vol. 236, pp. 123947, 2023. [2022 IF = 8.2; 7/72 Q1 in CHEMISTRY, APPLIED]
9. J. C. Baena*, C. Wang, Y. Fu, I. I. Kabir, **A. C. Y. Yuen**, Z. Peng, G. H. Yeoh, A new fabrication method of designed metamaterial based on a 3D-printed structure for underwater sound absorption applications, *Applied Acoustics*, Vol. 203, pp. 109221, 2023. [2022 IF = 3.4; 7/31 Q1 in ACOUSTICS]
10. Q. Wan, G. Zhai, C. Wang, A.C.Y. Yuen, P.R. Medwell, S. Kook, G.H. Yeoh, Q.N. Chan*, A parametric investigation of methane jets in direct-injection compression-ignition conditions, *Fuel*, Vol. 334, Part 1, pp. 126521, 2023. [2022 IF = 7.4; 19/140 Q1 in ENGINEERING, MECHANICAL]
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(Source of statistic: Web of Science journal ranking system)

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(Underline: denotes Ph.D. or Master by Research students I supervised)

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(**ORCID link:** <https://orcid.org/0000-0002-1433-447X>)