



QUALIFICATIONS

BSc (Hons) – Physics (1987)

MSc – Fire Protection Engineering (1999)

PhD – Fire Engineering (2005)

MEMBERSHIPS & REGISTRATIONS

Chartered Engineer (2006)

Member of the Institution of Fire Engineers (2004)

Professional Member of the Society of Fire Protection Engineers (1999)

EXPERIENCE OVERVIEW

Research Leader, OFR
2017 – Present

Lecturer to Associate Professor,
University of Canterbury,
New Zealand
1999 – 2017

Scientific Officer to Consultant,
Building Research Establishment
(BRE)
1987 – 1999

CAREER SUMMARY

Mike is a Chartered Engineer and currently leads OFR's research activities. He is involved in a wide range of fire science and engineering research topics both for private clients and in the public domain.

Mike joined BRE after graduating from the University of Nottingham with a degree in physics where he carried out research and consultancy into the performance of active fire protection systems including an experimental programme to investigate using detector controlled sprinkler and spray systems for enhanced life safety in buildings, the benefits of domestic smoke alarms by assessing the siting of such devices in dwellings, examining the performance of various types backup energy sources used in mains powered devices, looking at the costs and benefits of installing such devices in the UK and comparing the performance of smoke alarms complying with UK and US standards. Other projects outside of the active and passive protection domain included investigating integrated data sharing techniques for fire simulation software through the IFC building product model, use of computer fire models for the reconstruction of fire incidents, experimental studies for the Channel Tunnel Safety Authority to measure the severity of fires in cars and the European Space Agency on the behaviour of fires in micro gravity.

Between 1997 and 1999 Mike completed his MSc in fire protection engineering at the University of Maryland. He was also responsible for the Department's cone calorimeter equipment and managed one of the Department's research and teaching laboratories. Mike assisted with a professional course for the ATF, conducted cone calorimeter experiments for external clients. During this period Mike continued to work part-time for BRE.

In 1999 Mike joined the academic staff at the University of Canterbury where he also completed his PhD part-time. He taught fire engineering courses at masters and senior undergraduate level including a general introduction to fire engineering course to around 60 undergraduates annually along with Masters courses in active fire protection systems, human behaviour, risk management and coordinator for the fire engineering design course. He was involved with the supervision of PhD thesis, Masters dissertation and final year undergraduate project students. He was the fire engineering programme coordinator which included the development of programme regulations, advice to students within the programme, coordination of teaching activities within the group, maintenance of my own research group and linking that group with the research being undertaken by the other academics within the fire group, promotion of the programme to outside audiences. He integral to the development of the fire engineering distance programme. During his tenure at the university he carried out research activities which included ongoing development of a risk-based Monte Carlo human behaviour and egress model and further work on the integration of BIM with fire engineering simulation tools.

In June 2017, Mike joined OFR Directors Simon Lay and Sam Liptrott to provide research-based technical support to the wider group. Mike is heavily involved in OFR's research & development on fundamental and applied research activities. He also provides technical mentoring and CPD activities for staff, internal review of reports, maintains links with UK and international universities and other research-based organisations.

RECENT PROJECTS

Mike has been involved in the fire engineering input on a number of research projects at OFR. These include:

- Co-investigator for a 2-year BRANZ funded research project into the impact of exposed CLT on fire development within buildings, and the development of associated guidance / tools.
- Review of the fire safety precautions for car parks in Approved Document B.
- Development of a database of tall building façade fire incidents for a machine learning environment.
- National testing and guidance on the fire safety of internal noticeboards.
- Comparison of the BS 476 and the BS EN 13501 standards for reaction to fire.

AWARDS

- Contributing author to best paper at Interflam: 15th International Conference on Fire Safety Engineering, 2019.
- Contributing author to best paper at the 8th International Symposium on Tunnel Safety & Security, 2018.
- SFPE New Zealand Chapter President's award, 2016.
- UCSA supervisor of the year, 2012.
- Excellent paper award, 9th Asia-Oceania Symposium on Fire Science and Technology, 2012.
- Bigglestone award for excellence in the communication of fire protection concepts, 2009.
- Honourable mention award at the 10th International Association of Fire Safety Science (IAFSS) symposium, 2008.
- Best paper, 5th Asia-Oceania Symposium on Fire Science and Technology, 2001.

REPRESENTATION ROLES / OTHER ACTIVITIES

Mike is keen to see the continued advancement of the fire engineering discipline as a core, integrated discipline. He has been involved in a number of activities:

- Committee member responsible for the revision of PD 7974 part 1 (fire dynamics).
- Membership of the scientific committees for the IAFSS, AOSFST and SFPE Performance Based Codes conferences.
- Guest lecturer at the University of Manchester.
- External reviewer for several BRANZ study reports.
- Guest researcher at the National Institute of Standards and Technology (NIST), 2011
- Editor of the third edition of the Fire Engineering Design Guide.
- Current and past membership of the editorial boards for: Fire Safety Journal, Fire Technology and the Journal of Fire Sciences.
- Peer reviewer for a wide range of international journals and conferences.

PUBLICATIONS

Mike has been the contributing author to 87 peer reviewed journal papers, 80 conference publications and 28 articles in industry periodicals etc. A full set of publications are available on request. Selected publications specifically related to vehicle fires and car parking building fires are listed below:

Refereed journal papers

- Tohir M Z M, Spearpoint, M J, Fleischmann C M. Prediction of time to ignition in multiple vehicle fire spread experiments, *Fire and Materials*, 42(1), 69-80, 2018. doi: 10.1002/fam.2458
- Wang X, Fleischmann C, Spearpoint M. Assessing the influence of fuel geometrical shape on Fire Dynamics Simulator (FDS) predictions for a large-scale heavy goods vehicle tunnel fire experiment. *Case Studies in Fire Safety*, 5, 34–41, 2016. doi: 10.1016/j.csfs.2016.04.001
- Spearpoint M J, Tohir M Z M, Abu A K, Xie P. Fire load energy densities for risk-based design of car parking buildings. *Case Studies in Fire Safety*, 3, 44–50, 2015. doi: 10.1016/j.csfs.2015.04.001
- Tohir M Z M, Spearpoint, M J. Distribution analysis of the fire severity characteristics of single passenger road vehicles using heat release rate data. *Fire Science Reviews*, 2(5): 26 pp, 2013. doi: 10.1186/2193-0414-2-5
- Cheong M K, Spearpoint M J, Fleischmann C M. A comparison of a statistical and computational fluid dynamics approach to estimate goods vehicle heat release rate in road tunnel fires. *Fire Technology*, 46(3) 531–549, 2010. doi: 10.1007/s10694-009-0105-9
- Cheong M K, Spearpoint M J, Fleischmann C M. Calibrating an FDS simulation of goods vehicle fire growth in a tunnel using the Runehamar fire experiment. *Journal of Fire Protection Engineering*, 19(3) 177-196, 2009. doi: 10.1177/1042391508101981
- Cheong M K, Spearpoint M J, Fleischmann C M. Using peak heat release rate to determine the fire risk level of road tunnels. *Journal of Risk and Reliability*, 222(4) 595–604, 2008. <http://dx.doi.org/10.1243/1748006XJRR169>
- Li Y, Spearpoint M J. Analysis of vehicle fire statistics in New Zealand parking buildings. *Fire Technology*, 43(2), 93–106, 2007. doi: 10.1007/s10694-006-0004-2
- Li Y, Spearpoint M J. Cost-benefit analysis of sprinklers for property protection in New Zealand parking buildings. *Journal of Applied Fire Science*, 12(3), 223–243, 2006.
- Spearpoint M J, Olenick S M, Torero J L, Steinhaus T. Ignition performance of new and used motor vehicle upholstery fabrics. *Fire and Materials*, Vol 29, pp.265–282, 2005. doi: 10.1002/fam.884
- Shipp M P, Spearpoint M J. Measurements of the severity of fires involving private motor vehicles. *Fire and Materials*, 19(3): 143–151, 1995.

Conference publications

- Spearpoint M, Hopkin D, Arnott M. The historical background to fire resistance periods for the design of car parks in the UK, 3rd International Conference on Structural Safety under Fire & Blast Loading, CONFAB 2019, 2–4 Sept 2019, Brunel University, London, UK.

- Tohir M Z M, Spearpoint M. The capability of B-RISK zone modelling software to simulate BRE multiple vehicle fire spread test. In: Mohamed Ali M., Wahid H., Mohd Subha N., Sahlan S., Md. Yunus M., Wahap A. (eds) Modeling, Design and Simulation of Systems. AsiaSim 2017. Communications in Computer and Information Science, vol. 751. Springer, Singapore, 2017.
- Mohd Tohir M Z, Spearpoint, M. Probability of fire spread between vehicles in car parking buildings, Global Civil Engineering Conference, GCEC 2017, 25-28 July, Kuala Lumpur Malaysia 2017.
- Tohir M Z M, Spearpoint, M J. Travelling fire spread between vehicles in car parking buildings. 15th International Conference on Fire and Materials, 6 - 8 Feb, San Francisco, USA, 2017.
- Mohd Tohir M Z, Spearpoint, M. Simplified approach to predict heat release rate curves from multiple vehicle fires in car parking buildings, 3rd International Conference on Fire in Vehicles (FIVE), Berlin, Germany, 1–2 Oct 2014.
- Mohd Tohir M Z, Spearpoint, M. Development of fire scenarios for car parking buildings using risk analysis. Fire Safety Science 11: 944–957, 2014. 10.3801/IAFSS.FSS.11-944
- Cheong M K, Thong M, Spearpoint M J, Fleischmann C M. The effect of road tunnel ventilation on the separation of vehicles to minimise fire spread. Proc. 13th International Symposium on Aerodynamics and Ventilation of Vehicle Tunnels, p.199 - 210, New Brunswick, NJ, USA, 13–15 May 2009.
- Cheong M K, Spearpoint M J, Fleischmann C M. Design fires for vehicles in road tunnels. Proc. 7th International Conference on Performance-Based Codes and Fire Safety Design Methods, Auckland, New Zealand, pp.229-240, 2008.
- Spearpoint M J, Shipp M P. Measurement of heat release from burning automobiles for Channel Tunnel hazard assessment. Proceedings of the Fire Calorimetry Conference, DOT/FAA/CT-95/46, FAA Technical Center, Atlantic City, USA, 1995.

Industry publications

- Spearpoint M. Design for life: The changing face of car parks and fire safety compliance. Parking News, Issue 388, 24–25, August 2019.
- Spearpoint M J, Shipp M P. Virtual reality for the channel tunnel fire investigation. Fire Safety Engineering, 4 (6) pp.6-7, 1997.