Guillermo Rein, PhD
Professor of Fire Science
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1. Overview

I am Professor of Fire Science at the Department of Mechanical Engineering of Imperial College London, and Editor-in-Chief of the journal *Fire Technology.*

My research is centred in fire, heat transfer and combustion. The purpose of my work is to reduce the worldwide burden of accidental fires and protect people, their property, and the environment. I specially enjoy solving multidisciplinary problems combining experimental and modelling techniques.

Currently, I lead the research group Imperial Hazelab, where I supervise 3 postdoc and 12 PhD students. I have graduated 11 PhD students, 5 of whom have become academics. I have been prolific at publishing my work in 105 journal papers (Google h-index 39, collecting over 4,400 citations), including contributions in *Proceedings of the National Academy of Science, Nature Geoscience*, and *Combustion and Flame*.

I have been successful at winning competitive funding to support my research (>£4.0m), including a £1.5m Consolidator Grant from *European Research Council*. My work has been recognised internationally with a number of prizes (e.g. 2018 SFPE *Guise Medal*, 2017 The Engineer *Collaborate-to-Innovate Prize*, 2017 Combustion Institute *Sugden Award*, 2016 SFPE *Lund Award*). I have also been featured in international media (e.g. *Financial Times*, *Wired*, *BBC*, *New York Times, Scientific American)*.

2. Education

2003-2005 ... Ph.D. in Mechanical Engineering, University of California at Berkeley: *Computational Model of Forward and Opposed Smoldering Combustion with Improved Chemical Kinetics*. Supervised by Prof Carlos Fernandez-Pello. Sponsored by NASA Space Flight Program. Thesis: http://repositories.cdlib.org/cpl/fs/ReinPhD05

2001-2003 ... M.Sc. in Mechanical Engineering, University of California at Berkeley.

1992-1999 ... *Ingeniero Industrial* in Mechanical Engineering, ICAI Universidad Pontificia Comillas, Madrid (Spain).

3. Professional Career

2017-present .. Professor of Fire Science, Department of Mechanical Engineering, Imperial College London.

2013-present ... Editor-in-Chief of *Fire Technology*, scientific journal by Springer Nature, NFPA and SFPE.

2015-2017 ... Reader in Thermal Energy, Department of Mechanical Engineering, Imperial College London.

2012-2015.... Senior Lecturer, Department of Mechanical Engineering, Imperial College London.

2011-2012 ... Senior Lecturer in Mechanical Engineering, University of Edinburgh.

2010-2011 ... Senior Research Fellow of Royal Academy of Engineering and Leverhulme Trust, Institute of Infrastructure and Environment, University of Edinburgh.

2006-2011 ... Lecturer in Mechanical Engineering, University of Edinburgh.

2006..... Research Fellow, Institute of Infrastructure and Environment, University of Edinburgh.

1999-2001 ... Junior Research Fellow, Instituto de Investigación Tecnológica, ICAI Universidad Pontificia Comillas, Madrid.

1998-1999 ... Visiting student at the Department of Mechanical Engineering, University of Texas at Austin.

4. Research

4.1 Overview of Funding

Since 2006, I have won in excess of £4 million in funds to sponsor my research from a range of scientific and industrial sponsors, including ERC (2015 Consolidator Grant), EPSRC, Arup, Leverhulme Trust, RAEng, BASF Germany, NIST USA, FM Global USA, BSEF Belgium, Research Council of Norway, BRE UK, CSC China, SFPE USA, CERIB France, NFPA USA, and Met Office UK.

4.2 Most important Prizes and Awards

2018 **Guise Medal** for eminent achievement in the advancement of the science and technology of fire protection engineering, awarded by the Society of Fire Protection Engineering.

2018 **Research Foundation Medal** for the research project that best exemplifies the NFPA Foundation's fire safety mission, technical challenges overcome, and collaborative approach. Awarded by the *National Fire Protection Association.*

2017 **Sudgen Award** for the most significant UK paper in combustion, by The British Section of The Combustion Institute.

2017 **Collaborate to Innovate Prize** in the Built Environment, awarded by The Engineer for our work with Arup on the structural fire-safe design of the Scalpel in London.

2016 **Early Career Award for Excellence in Wildland Fire** for demonstrated outstanding ability in the field of fire science, by the International Association of Wildland Fire.

2016 **Peter Lund Award** for significant contributions to the advancement of the professional recognition of the fire protection engineer by the Society of Fire Protection Engineering.

2015 **Best Fire Research Project** for our work on travelling fires methodology for the structural design of modern buildings by the UK Chapter of Society of Fire Protection Engineering.

2013 **Distinguished Paper Award on Fire Research** at the 34th International Symposium on Combustion for our research paper on the chemistry of smouldering combustion by The Combustion Institute.

2009 **Hinshelwood Prize** for meritorious work in combustion by a younger scientist by The British Section of The Combustion Institute.

2009 **Distinguished Paper Award on Fire Research** at the 32nd International Symposium on Combustion for our paper the carbon emissions from smouldering peat by The Combustion Institute.

2007 **FM Global Award** for best paper presented at the 5th International Seminar on Fire and Explosion Hazards for our paper on a-priori modelling predictions of the large-scale Dalmarnock fire experiments.

4.3 Other Prizes and Awards

2017 3rd Prize for *Best Poster* at the 2017 Fire Retardant Polymeric Materials.

2017 *Best Poster Award* at the 12th Symposium on Fire Safety Science.

2016 Cover article in journal *Bioresource Technology*, volume 207, issue May 2016 (for paper 10.1016/j.biortech.2016.01.027).

2016 *Sentinels of Science Award* from Publons for being among the top 10% peer reviewers.

2015 *Chief Donald J. Burns Memorial Research Grant* from Society of Fire Protection Engineering (USA) for *Fire Navigator - Forecasting fire dynamics in smart buildings*

2015 *Excellent Poster Award* at 10th Asia-Oceania Symposium on Fire Science and Technology for *Expandable Polystyrene Foam Spot Fire Ignition by Hot Metal Particle.*

2015 *Best Poster Award* at 2th European Symposium on Fire Safety Science for An *Experimental Study of the Spread Profiles in Smouldering Wildfires.*

2014 *Best Speaker* at the *2nd Annual Tunnels Fire & Safety Forum*, Amsterdam.

2014 *Best Photo Award* at the 11th Symposium on Fire Safety Science for *Fire Watch Constellation.*

2014 *Best Poster Award* at the 11th Symposium on Fire Safety Science for *Computational Smouldering Combustion: Predicting the Roles of Moisture and Inert Contents in Peat Wildfires.*

2013 *Best Poster Award* at 4th International Fire Effects on Soil Properties conference for *Effect of peat moisture content on smouldering fire propagation.*

2011 *Lloyd's Science of Risk Prize in Technology* for the paper *The Influence of Travelling Fires on a Concrete Frame*.

2010 *Best Poster Award* at 2010 Spring Meeting of the British Section of The Combustion Institute, for *Experimental Review of the Homogeneous Temperature Assumption in Post-Flashover Compartment Fires.*

2010 *Lloyd's Science of Risk Prize in Technology* for the paper *A Novel Multiscale Methodology for Simulating Tunnel Ventilation Flows during Fires*.

2009 *15th Lord Ezra Award* for outstanding achievement in the study of combustion engineering, Combustion Engineering Association for developing the STAR smouldering technology for remediation of contaminated soils.

2008 *Best Poster Award* Audience Choice at the 9th Symposium on Fire Safety Science for *Fire Fighting Coal Mine Fires: Characterization and extinguishing methods using small-scale Experiments.*

2007 *Bodycote Warrington Fire Research Prize* for best paper, The Institution of Fire Engineers for our paper on the Dalmarnock fire experiments.

4.4 Overview of Publications

Together with my research group and collaborators, I have published 6 book chapters, 2 edited books, 105 journal papers and more than 180 conference communications. According to Google Scholar, my current h-index is 39 and citation count is over 4,400. According to Scopus, my current h-index is 31 and citation count is over 2,770. See detailed list of publications at the end of this document.

ORCID publication account 0000-0001-7207-2685.

4.5 Patent

International Patent Cooperation Treaty Application, *Method and Apparatus for Remediating Contaminated Land by a Combustible Material b*y JI Gerhard, JL Torero, P Pironi, C Switzer and G Rein, 2006. Ref. PCT/GB2006/004591 (Priority Date 10/12/2005). Issued patent US8132987 (Mar 13, 2012): http://www.google.com/patents/US8132987. Commercial license since 2010 to Geosyntec Consultants Inc.

4.6 Supervision of Students and Postdocs

I have supervised 6 postdocs and graduated 11 PhD students. Of these students, 4 have become academics.

PhD degree

May 2010 ..... **Wolfram Jahn**, Inverse modelling to forecast enclosure fire dynamics, University of Edinburgh. Funded by EU Alβan Scholarship and BRE Trust. I was 1st supervisor. He is now Lecturer at Pontificia Universidad Católica de Chile.
http://hdl.handle.net/1842/3418

May 2010 ..... **Francesco Colella**, Multiscale modelling of tunnel ventilation flows and fires, Politecnico di Torino. I was co-supervisor and had major contributions. Winner of 2014 ITA COSUF Award on safety of underground facilities and 2010 Lloyd's Science of Risk Prize in Technology. He is now Associate at Exponent Inc (USA).
http://hdl.handle.net/1842/3528

Jul 2011 ..... **Jamie Stern-Gottfried**, Travelling fires in building design, University of Edinburgh. Funded by Arup. I was 1st supervisor. Recipient of the 2010 David B. Gratz Scholarship from NFPA. He is now Director of Brand Safety at InterContinental Hotels Group, Berlin.
http://hdl.handle.net/1842/5244

Oct 2011 ..... **Rory Hadden**, Smouldering and self-sustaining reactions in solids, University of Edinburgh. Funded by EPSRC and IFiC. I was 1st supervisor. Winner of Distinguished Paper Award on Fire Research at the 34th International Symposium on Combustion. He is now Lecturer at the University of Edinburgh.
http://hdl.handle.net/1842/5587

Aug 2012 ..... **Freddy Jervis**, Fire calorimetry and flammability of cellulosic materials: Pine needles, tree leaves and chipboard, University of Edinburgh. Funded by BRE Trust. I was 1st supervisor. He is now Lecturer at the Universidad San Francisco de Quito (Ecuador).
http://hdl.handle.net/1842/6406

Nov 2012 ..... **Nicolas Bal**, Uncertainty and complexity in pyrolysis modelling, University of Edinburgh. Funded by BRE Trust. I was 1st supervisor. He is now Senior Engineer at Technip, Paris.
http://hdl.handle.net/1842/6511

Dec 2015 ..... **Xinyan Huang**, Fundamental study of smouldering combustion of peat in wildfires, Imperial College London. Funded by Exceptional Overseas Scholarship. I was 1st supervisor. Winner of the 2014 Qatar Petroleum Medal in Clean Fossil Fuels (Department of Chemical Engineering), and the 2016 Katopodis Prize (best thermofluids thesis in Mechanical Engineering). He is now Assistant Professor in Hong Kong Polytechnic University, China.
http://hdl.handle.net/10044/1/30789

Oct 2017 ..... **Egle Rackauskaite**, iTFM: improved travelling fires methodology for structural design and the effects on steel framed buildings, Imperial College London. Funded by EPSRC, Arup and SFPE. Winner of Best Fire Research Project by UK Chapter SFPE. I was 1st supervisor. She is now a fire engineer in Arup, London.
http://hdl.handle.net/10044/1/52917

Feb 2018 ..... **Francesco Restuccia**, Self-heating ignition of natural reactive porous media, Imperial College London. Funded by EPSRC. I was 1st supervisor. He is now a postdoc in the Department of Mechanical Engineering.
http://hdl.handle.net/10044/1/58013

Mar 2018 ..... **Izabella Vermesi**, Computational study of material fire behaviour under transient irradiation, Imperial College London. Funded by FM Global. I was 1st supervisor. She is now a fire engineer at Bureau Veritas, London.
http://hdl.handle.net/10044/1/59140

Apr 2018 ..... **Nils Roenner**, Heat Transfer Effects in Polymer Flame Retardancy, Imperial College London. Funded by BASF. I was 1st supervisor. He is now an engineer at BASF, Germany.

May 2019(exp) **Yuqi Hu**, Experimental investigation of peat fire emissions and haze phenomena, Imperial College London. Funded by China Scholarship Council and ERC grant. I am 1st supervisor.

May 2019(exp) **Franz Richter**, Computational pyrolysis of timber in fire, Imperial College London. Funded by EPSRC and Arup. I am 1st supervisor. Winner of the 2018 El-Shanawany Memorial Prize (best PhD student in Mechanical Engineering).

Aug 2020(exp) **Mohammad Heiradi**, Probabilistic methods and travelling fires in the structural design of buildings, Imperial College London. Funded by CERIB. I am 1st supervisor.

Aug 2020(exp) **Matthew Bonner**, Fire safety optimisation of building façades, Imperial College London. Funded by EPSRC and Arup. I am 1st supervisor.

Aug 2020(exp) **M Agun Santoso**, Smouldering combustion of peat and the transition to flaming, Imperial College London. Funded by scholarship from Indonesian Government and ERC grant. I am 1st supervisor.

Aug 2020(exp) **Eirik Christiansen**, Ignition of wildfires in permafrost soil, Imperial College London. Funded by ERC grant. I am 1st supervisor.

Aug 2020(exp) **Han Yuan**, Self-heating ignition and smouldering fires of peat, Imperial College London. Funded by the President's Scholarship and ERC grant. I am 1st supervisor.

Aug 2021(exp) **Edmund Ang**, Tunnel fires and the throttling effect, Imperial College London. Self-funded. I am 1st supervisor.

Aug 2021(exp) **Zhenwen Hu**, Computational study of the chemical pathways in self-heating ignition of large ensembles of Lithium-ion batteries, Imperial College London. Funded by China Scholarship Council. I am 1st supervisor.

Aug 2021(exp) **Xuanze He**, Computational and Experimental study of self-heating ignition of Lithium-ion batteries, Imperial College London. Funded by China Scholarship Council. I am 1st supervisor.

Aug 2021(exp) **Benjamin Khoo**, Computational study of façade fires and cavities, Imperial College London. Funded by EPSRC and Arup. I am 1st supervisor.

Aug 2021(exp) **Dwi J Purnomo**, Cellular automaton simulations of peat fires at the field scale, Imperial College London. Funded by department scholarship to best MSc student, Indonesian Government and ERC grant. I am 1st supervisor.

Dec 2021(exp) **Wuquan Cui**, Experimental investigation of peat fire emissions, Imperial College London. Funded by ERC grant. I am 1st supervisor.

Aug 2022(exp) **Francesca Lugaresi**, Mechanical design of facades against fire, Imperial College London. Funded by EPSRC and Arup. I am 1st supervisor.

Postdoctoral staff

2011-2012 ... **Dr Claire Belcher**, Postdoctoral staff at University of Edinburgh under my co-supervision. She was funded by her own Marie Currie Fellowship. She is now Professor at University of Exeter.

2012..... **Dr Rory Hadden**, Postdoctoral staff at Imperial College London under my supervision. He was funded by a Doctoral Prize Fellowship from EPSRC. He is now Senior Lecturer at University of Edinburgh.

2015-2016 ... **Dr Virginia Alonso**, Postdoctoral staff at Imperial College London under my supervision. She was funded by BSEF grant. She is now an engineer at AECOM Madrid.

2016-2018 ... **Dr Nieves Fernandez**, Postdoctoral staff at Imperial College London under co-supervision myself. She was funded by our grant from Research Council of Norway (EMRIS). She is now Associate Professor at Western Norway University of Applied Sciences.

2017-2018 ... **Dr Egle Rackauskaite**, Postdoctoral staff at Imperial College London under my supervision. She was funded by a Doctoral Prize Fellowship from EPSRC. She is now a fire engineer in Arup, London.

2017-2018 . **Dr Francesco Restuccia**, Postdoctoral staff at Imperial College London under my supervision. He was funded by ERC grant. He is now a postdoc in the Department of Mechanical Engineering

2018-present **Dr Guoxiang Zhao**, Postdoctoral staff at Imperial College London under my supervision. He is funded by ERC grant.

2018-present **Dr H Fahid Amin**, Postdoctoral staff at Imperial College London under my supervision. He is funded by ERC grant.

5. Teaching

I am a motivated lecturer, enthusiastic about the education of the next generation of engineers.

I am also committed to teaching through research, and have led 8 undergraduate students to publish journal papers, and another 14 to present at international conferences.

I have substantial experience in academic tutoring and pastoral care as tutor of more than 110 undergraduate students (including 44 MEng/MSC students). I have coached undergraduate students and help them prepared to win important leadership awards (eg, from RAEng and BP).

5.1 Teaching Experience

2013-present .. Course leader of 2nd year course *ME2 Heat Transfer,* Department of Mechanical Engineering, Imperial College London.

2013-present .. Course leader of 4th year and MSc-level course *IDX Combustion Science,* Department of Mechanical Engineering, Imperial College London.

2015-present .. Co-creator and lecturer of MSc course *Structural Fire Engineering* in the Department of Civil Engineering, Imperial College London.

2011-2012 ... University of Edinburgh, Mechanical Engineering: 4th year *Fire Dynamics* (to all Engineering degrees), 2nd year *Thermodynamics*, and 1st year *Energy Systems*.

2007-2010 ... University of Edinburgh, Mechanical Engineering: 2nd year *Mechanical Engineering Design*, *Introduction to Matlab and* 1st year *Mechanical Engineering* (statics, energy and measurements lab*)*.

2002-2005 ... University of California at Berkeley, Department of Mechanical Engineering, Teaching Assistant of the undergraduate course *Combustion Processes* (ME140).

5.2 Guest Lecturer at Other Institutions

2016 Lecture for Training School for Young Researchers COST Action FP1404, Edinburgh.

2014 Summer course on Combustion for BSc and MSc students in Power Engineering at Beihang University, China.

2013 Lectures for MSc students in Fire Protection Engineering at Ghent University, Belgium.

2013 Lecture for Training School for Young Researchers COST TU0904, Naples.

2012 Lectures for MSc students in Fire Protection Engineering at Universidad Pontificia de Comillas ICAI, Spain.

2012 Lecture for Training School for Young Researchers COST Action TU0904, Malta. http://www.scribd.com/doc/89665615

2011 Summer course on fire modelling for MSc students at Universitat Politècnica de Catalunya, Spain.

5.3 Excellence in Teaching

2016-18 Nominated for *Student Academic Choice Award* for Best Teaching of Undergraduate Students by Imperial College Union.

2017 Award for *Best Lecturer* in ME 2nd year by the Mechanical Engineering Society.

2015-16 Nominated for *Best Lecturer Award* by the Mechanical Engineering Society.

2014 Best departmental scores in the SOLE teaching evaluations for 4th year course *Combustion*.

2009-12 Nominated for Teaching Awards for *Best Director of Studies* (2011), *Best Lecturer* (2012, 2009) and *Best Course* (2012 and 2009) by the *Edinburgh University Students'*

Association. I was the 8th most nominated academic out of 100 at the School of Engineering of the University of Edinburgh.

2004 *Outstanding Graduate Student Instructor Award* at the University of California at Berkeley.

5.4 Outreach and Public Engagement

Ambassador for the Queen Elizabeth Prize for Engineering (QE Prize).

Chair of the Departmental Group for Outreach and Societal Engagement.

Speaker of Engineering and Mechanical Engineering topics for Open Days, Summer Schools, and other educational institutions. For example, I was invited to talk at Pint of Science 2016 in London.

Founder and first convener of the Media Committee at the School of Engineering, University of Edinburgh in 2012.

6. Departmental Administration Duties

Year Organizer for ME2 undergraduate studies in Mechanical Engineering. This role gives me membership to the Course Committee; Student-Staff Liaison Committee; Special Circumstances Committee; and Pre-Board-of-Examiners.

Academic Liaison of *Whitelaw Laboratories* in the City and Guilds Building (multiuser combustion labs).

Member of the Management Board of the Grantham Institute for Climate Change and the Environment, and Departmental co-ordinator for the Science and Solutions for a Changing Planet (SSCP) Doctoral Training Partnership (NERC and Grantham Institute).

7. Consultancy for industry

Expert in fire accidents, fire technology and combustion science. I have been involved in more than 40 consultancies to industry in UK, France, Italy, Belgium and USA. For example, work included study of fire phenomena in residential settings (2017 Grenfell Tower Fire Inquiry), warehouses (2009 UK clothing retailer), car parks (2007 Lloydstraat fire in Rotterdam), airports (2006 Brussels Airport fire) and oil & gas facilities (passive thermal protection). Some of the industrial clients are Arup, Jacobs Engineering, The Carbon Company, COWI, CERIB, Irish Fire and Rescue Service, Barlow Lyde & Gilbert, Kennedys, IFiC and BilCo.

I have also taught a dozen of short Professional Development courses, eg, to building engineers, architects, fire and rescue services, mining industry and forensic experts.

8. External Professional Service

Editorial Positions

Editor-in-Chief of *Fire Technology* since 2013. This is the peer-reviewed journal of the *National Fire Protection Association* (NFPA) and the *Society of Fire Protection Engineering* (SFPE) published by Springer Nature. Previously, Associate Editor (2010-2012), Guest Editor (2009) and Editorial Board member (2009-2010).

Associate Editor of *Proceedings of the Combustion Institute,* 2013-2019.

Associate Editor of *Thermal and Mass Transport,* a specialty journal of *Frontiers in Mechanical Engineering,* since 2016.

Editorial Board member of *Safety Science*, since 2017.

Advisory Board member of *International Journal of Wildland Fire*, since 2016.

Guest Editor of *Proceedings of the National Academy of Sciences* (PNAS), 2016.

Guest Editor of *Science of the Total Environment*, 2015-2016.

Guest Editor of *Journal of Loss Prevention in the Process Industries*, 2015-2016.

Current Committee Memberships

British Standards Institution (BSI) revision panels for PD7974-1 and PD7974-3 "Application of fire safety engineering principles to the design of buildings".

International Association for Fire Safety Science, since 2011. Re-elected to the Committee in 2014.

International Association of Wildland Fire, Board of Directors, since 2014.

Science Advisory Council of North American Flame Retardant Alliance, American Chemistry Council, since 2015.

Research Advisory Committee of the Fire Protection Research Foundation, National Fire Protection Association (NFPA), 2016-2018.

Subcommittee on Research & Innovation of the Society of Fire Protection Engineers (SFPE), 2016-2018.

Adviser to the Spanish Chapter of the Society of Fire Protection Engineers, since 2016.

Previous Committee Memberships

Editorial Board member of *Fire Safety Journal*, 2014 to 2017.

British Section of the Combustion Institute, 2008 to 2014. Re-elected in 2011.

Institute of Physics, Combustion Group, 2009 to 2015. Re-elected in 2012.

Technical Panel to the review of the UK Furniture & Furnishings Regulations, Department for Business, Innovation and Skills, UK, 2016.

Fire Modelling Special Interest Group, Institution of Fire Engineers, 2011 to 2017.

European Network COST TU0604 "Integrated Fire Engineering and Response". Chairman of Fire Dynamics Working Group, 2011 to 2014. Previously (2010-2011), Vice-chairman.

Most Important Conference Committees

Chairman of Track 'Material Behavior in Fires', *9th International Seminar on Fire and Explosion Hazards*, April 2019 in Saint-Petersburg.

Co-chairman of Colloquia Fire Research, *International Symposium on Combustion* by The Combustion Institute, for the editions 37th (Aug 2018 in Dublin) 36th (Aug 2014 in Seoul) and 35th (Aug 2014 in San Francisco).

Chairman of Track 'Material Behavior in Fires', 12th International Symposium on Fire Safety Science by IAFSS, July 2017 in Lund.

Organizer of the *5th International Meeting of Fire Effects on Soil Properties,* July 2015 in Dublin.

Program Committee of SUPDET 2015 *19th Suppression, Detection and Signaling Research and Applications Symposium*, March 2015 in Orlando.

Programme Committee of *International Conference on Forest Fire Research,* Coimbra, for the editions 8th (Nov 2017), 7th (Nov 2014) and 6th (Nov 2010). http://www.adai.pt/icffr

Co-chairman of Track 'Ignition and Flame Spread', 11th International Symposium on Fire Safety Science by IAFSS, Feb 2014 in New Zealand.

Organizing Committee of *13th UK Heat Transfer Conference*, Sept 2013, London. http://www.ukhtc2013.co.uk

Organizer of Meeting of the *Combustion Group at the Institute of Physics*, "Emerging Combustion Technologies", Sep 2010 in Edinburgh.
http://www.iop.org/events/scientific/conferences/y/10/combustion

Organizer of Spring meeting of *Combustion Institute British Section*, "Combustion Phenomena in Fire Science", April 2010 in Edinburgh.

Organizer of Mathematical Problems in Fire Safety Engineering, International Centre for Mathematical Sciences, Oct 2008 in Edinburgh.

Organizing Committee of *5th International Seminar on Fire and Explosion Hazards*, May 2007 in Edinburgh.

External Reviewer for Academic Promotions
University of Edinburgh, UK.
University of Michigan at Ann Arbor, USA.
University of Maryland, USA.
Technical University of Denmark (DTU), Denmark.

9. External Ph.D. Examiner

2017 J McGonigal, Glasgow Caledonian University (UK).
2016 F Hewitt, University of Central Lancashire (UK).
2015 P Ayala, ICAI Universidad Pontificia de Comillas (Spain).
2014 D Pau, University of Canterbury (New Zealand).
2013 C Riera, Institut National des Sciences Appliquées de Rouen (France).
2013 A Gomez Moreno, Universidad de Jaen (Spain).
2012 P Giraldo, Universitat Politecnica de Catalunya (Spain).
2012 A Witkoski, University of Central Lancashire (UK).
2011 P Bartoli, Università di Corsica Pasquale Paoli (France).
2011 C Stoof, Wageningen University (Netherlands).
2011 P Caine, University of Leeds (UK).
2010 P Pereira, Universitat de Barcelona (Spain).
2010 Y Perez Ramirez, Universitat Politecnica de Catalunya (Spain)
2010 S Wasan, Ghent University (Belgium).
2009 C Gomez-Montes, Universidad Politecnica de Cartagena (Spain).
2009 P Espinosa Santos, Universidad de Cantabria (Spain).
2008 M Martins, (*rapporteur)* Universite de Toulouse (France).
2008 M Lazaro Urrutia, Universidad de Cantabria (Spain).
2007 A Ronza, Universitat Politecnica de Catalunya (Spain).

I have served as Internal Examiner for 11 PhD theses at Imperial College London and 8 PhD theses at the University of Edinburgh.

10. Keynote and Plenary Lectures

2018 *Challenges of today and tomorrow in Fire Science and Engineering*, Guise Medal award, North America Conference & Expo of Society of Fire Protection Engineers, Nashville, Nov.
2018 *Smouldering Combustion in Science and Technology*, 3rd European Symposium of Fire Safety Science, Nancy, Sept.
2018 *Fire Science and Engineering Challenges in the City and the Forest*, Performance Based Design SFPE Lisbon, June.
2018 *The Science of Fire*, Highlight Lecture at the Imperial Festival, London, May.
2017 *Travelling Fires for Structural Design of Buildings,* at ISO Fire Safety Conference, Santander, October.
2017 *Travelling Fires for Structural Design of Buildings,* at 2nd International Conference on Structural Safety Under Fire and Blast Loading (CONFAB), London, September.
2017 *Smouldering Combustion in Peatland Fires* - Quality in Research (QiR), Universitas Indonesia, Bali, July.
2017 *Travelling Fires for Structural Design of Buildings,* at 2nd International Fire Safety Symposium, Naples, May
2017 *Fire Science and Engineering: Challenges of today and tomorrow* - Society Fire Protection Engineers Middle East Conference, Dubai, March.

2017 *Smouldering Combustion Phenomena in Science and Technology* - 5th Magdeburg Fire and Explosion Conference, Otto-von-Guericke University,Magdeburg, March.

2016 *Travelling Fires for Structural Design of Buildings* at 11th Conference on Performance-Based Codes and Fire Safety Design Methods, by Society Fire Protection Engineers, Warsaw, May.

2016 *Trends in Fire Protection Engineering: Challenges of today and tomorrow* at Symposium on Fire Protection for a Changing World, by NFPA Fire Protection Research Foundation, Munich, April.
https://www.scribd.com/doc/309889046

2013 *Fate of Organic Matter and Pyrogenic Char in Smouldering Fires: when the soil burns to ash* - 4th International Meeting of Fire Effects on Soil Properties, Vilnius, July.
http://www.scribd.com/doc/151377107

2012 *Numerical forecasting of fire dynamics: tomorrow's infrastructure protection* - Young Investigators Conference of the European Community on Computational Methods in Applied Sciences (ECCOMAS), Aveiro, April.
http://www.scribd.com/doc/91845104

2011 *Travelling Fires in Building Structural Design* - 6th International Congress on Performance-Based Design for Fire, Madrid.

2011 *Multiscale Modelling of Tunnel Fires* - Fire Engineering Conference, Universitat Politècnica de València, Valencia, June.
http://www.scribd.com/doc/56978288

2010 *Smouldering fires in the Earth System* - 15th International Humic Substances Society Meeting, Tenerife, June.

11. Invited Speaker

2018 *Fire Science: Research for citizen safety*, Fire Safety Mission Europe, Brussels, 3 Dec.

2018 *The importance of Fire Safety and Flame retardancy*, Antimony Day, Brussels.

2018 *Challenges and Opportunities in Fire Science*, EPSRC review of funding in combustion, Cambridge, 5 Nov.

2017 *Computational Pyrolysis and Inverse Modelling* - Workshop on Pyrolysis - 12th Symposium of the International Association of Fire Safety Science, Lund, June.

2017 *Wild-Urban Interface Fires in Europe: Problems and Solutions* - Workshop on Large Outdoor Fires - 12th Symposium of the International Association of Fire Safety Science, Lund, June.

2016 Why *do turbines catch on fire?,* - SP Workshop on Wind Turbine Fires, SP Technical Research Institute of Sweden, Copenhagen, September.

2015 *Timber Behaviour in Fire* - European Workshop on Fire Safety of Green Buildings, COST Action FP1404, Berlin, Oct.

2015 *Risque Incendie et Propagation du Feu* - Journée Expertise & Construction du Centre d'Études et de Recherches de l'Industrie du Béton (CERIB), Epernon, France, July.

2015 *Computational Pyrolysis and Flammability Challenges* - BASF Workshop on Flame Retardancy, Ludwigshafen, Germany, Jun.

2015 *Challenges and Opportunities in Smouldering Combustion* - Inaugural Workshop of Emerging Fire Risks (EMRIS), Magdeburg, Germany, March.

2014 *Travelling fires for the Structural Design of Buildings* - Applied Technology Council (ATC) workshop on Performance-Based Structural-Fire Engineering, London, Nov.

2014 *Smouldering fires: Mitigating an unconventional source of emissions* - Low Emission Sustainable Energy Technologies Workshop (LESET), University College London, Sept.

2014 *Quenching the Reactive Earth: the accidental burning of fossil fuels & geoengineering* - Spring Meeting of the Institute of Physics Combustion Group, Cambridge, June.

2014 *Transient Modelling of Smoke Movement in Long Tunnels* – 2nd Annual Tunnels Fire & Safety Forum, Amsterdam (Winner of the Best Speaker Award)

2013 *Forecasting Fire Dynamics: When smart buildings help Fire Commanders* – Worksop on Decision Support at the Emergency Scene, University of Warsaw, Sept.

2012 *Real Fires for the Design of Tall Buildings* - High impact industrial-academic partnerships, Annual General Meeting, Institute of Physics, Combustion Group, Lincoln, October.

2012 *Advantages and Disadvantages of Fire Modelling* – Irish Chief Fire Officers Association Annual Conference, Dundalk (Ireland), May.
http://www.scribd.com/doc/93207808

2012 *Multiscale Modelling of Tunnel Fires (*Lección Magistral) - Universidad Pontificia de Comillas ICAI, Madrid, May.

2012 *From organic matter to pyrogenic char to ash: the role of smouldering combustion in wildfires* - Annual Meeting of European Geoscience Union, Vienna, April.
http://www.scribd.com/doc/91086911

2012 *A Primer on Research for Undergraduates* - Inaugural meeting of the Edinburgh University Young Science Researchers Association Edinburgh, January.

2011 *Strengths and Limitations of Computational Fire Dynamics* – 10th International Seminar on Fire Protection, Pontificia Universidad Católica de Chile, Santiago de Chile, August.

2011 *Pyrolysis Inverse Modelling* - Workshop on Pyrolysis Parameter Estimation - 10th Symposium of the International Association of Fire Safety Science, Maryland, June.

2011 *Experimental needs in Fire Modelling* - Workshop on Computer Modelling - 10th Symposium of the International Association of Fire Safety Science, Maryland.

2011 *Inverse Modelling to Forecast Enclosure Fire Dynamics* - Combustion Modelling for Challenging Application, Spring Technical Meeting, Institute of Physics, Combustion Group, Southampton.

2011 *Smouldering fires in the Earth System* - Colloque International Stop Feu, Oran, January.

2009 *Computational Modelling of Enclosure Fire Dynamics* - 5th International Congress on Performance-Based Design for Fire, Madrid.

2008 *Travelling-fire concept in Building Design* - Workshop on Fire and Structures, 9th Symposium of the International Association of Fire Safety Science, Karlsruhe.

2008 *Fires in the Mining Industry* - International Seminar on Fire Protection, Engineering Services SAC, Lima.

2007 *Towards Forecasting Fire Dynamics* - Rasbash Lecture, The Institution of Fire Engineers, Watford (UK).

12. Research Seminars

2019: London Fire Brigade; Friends of Imperial.

2018: Arup London; AECOM London; University of Maryland; University of California at Los Angeles; NFPA Massachusetts; NFPA webinar; SFPE webinar.

2017: Institute for Molecular Science and Engineering; Arup-Imperial Partnership; Heads of Department Lunch; Imperial College Council Dinner; University of Edinburgh.

2016: Pint of Science London; Kingston University London; Grantham Institute for Climate Change and the Environment.

2015: United Nations Mine Action Service, UN Headquarters Geneva; École Polytechnique Fédérale de Lausanne; BASF day at Imperial; Energy Future Labs - Clean Fossil Fuels Symposium; BASF-Imperial Workshop on Wind turbines.

2014: AECOM Sydney; AECOM London; Singapore Chapter of Society of Fire Protection Engineers; Beihang University, China; University of Science and Technology, China; Lawrence Berkeley National Laboratory; US Forest Service at Missoula, Jeremy Gardner Associates London.

2013: Royal College of Art London; BASF Ludwigshafen, Germany; Edinburgh Chapter of Society of Fire Protection Engineers; CD ADAPCO London; Centre for Nuclear Engineering at

Imperial College London; ARUP London; Respiratory Biomedical Research Unit at Imperial College London.

2012: University of Exeter; COWI Norway; Irish Fire and Rescue Service; The Galilean Society, Glasgow.

2011: King Abdullah University of Science and Technology, Saudi Arabia; Nanyang Technological University, Singapore; University of Maryland at College Park; University of California at Berkeley (x2) [watch]; University of Strathclyde, UK; University of West Virginia, USA; University of Texas at Austin; BRE Global London.

2010: Université de la Méditerranée, France; UK Biochar Research Centre at University of Edinburgh; ARUP London; CIMNE at Universitat Politecnica de Catalunya, Spain; King Abdullah University of Science and Technology, Saudi Arabia; Imperial College London; University of Oxford; Worcester Polytechnic Institute, USA.

2009: University College Dublin; University of Manchester; ICAI Universidad Pontificia de Comillas, Spain; School of Geosciences at University of Edinburgh.

2008: University of Leicester, UK; University of California at Berkeley; Heriot-Watt University, UK; National Institute of Standards and Technology, USA; University of Maryland at College Park; Worcester Polytechnic Institute, USA.

2007: AXA Corporate Solutions, Paris CIMNE at Universitat Politecnica de Catalunya, Spain; Politecnico di Torino, Italy; Arup London; VTT Technical Research Centre, Finland.

2004: University of Edinburgh.

1999: University of Texas at Austin.

13. Membership in Professional Societies

Combustion Institute since 2001 (formerly, Committee member of British Section).

International Association of Fire Safety Science (lifetime member) since 2005 (current re-elected Committee member).

Society of Fire Protection Engineers since 2006, and of the British Chapter since 2014.

*International Association of Wildland Fire since 2008 (current m*ember of Board of Directors).

European Geosciences Union (lifetime member) since 2008.

Institute of Physics since 2009 (current re-elected Committee member of Combustion Group).

14. Scientific Peer-Review

Reviewer of research proposals for funding agencies: EPSRC Engineering and Physical Sciences Research Council UK; NERC Natural Environment Research Council UK; Research Council of Norway; ANR French National Research Agency; Research Programme at Ghent University; CONICYT National Council for Scientific Research and Technology of Chile; MINECO Ministry of Economy and Finance of Spain.

Regular Peer reviewer of manuscripts (selected journals): Combustion and Flame; Proceedings of the Combustion Institute; Fire Safety Journal; Fire and Materials; International Journal of Wildland Fire; Combustion Science and Technology; Fuel; International Journal of Thermal Sciences; Experimental Thermal and Fluid Science; Applied Thermal Engineering; Thermal Science Journal; Philosophical Transactions of the Royal Society; Environmental Science and Technology.

15. Featured in Media

TV: BBC Two Newsnight (2017); *Channel 5* "*The Great Fire of London: In Real Time*" (2017), *Channel 4* and *Smithsonian Channel* (USA) "Titanic: The New Evidence" (2017), *Sky News* (2015).

Book: *The Science of Game of Thrones* by Helen Keen (2016).

Print Media: *Evening Standard* (2017), *New York Times* (2017), *La Guardia* (2017), *Scientific American* (2016), *Daily Mail* (2015), *Financial Times* (2014), *Daily Telegraph* (2014), *Daily Mail*

(2014), *Wired* (2013), *Engineering-News Record* (2013), *Chemical and Engineering News* (2013), *Science et Vie* (2011), *The New York Times* (2010), *The International Herald Tribune* (2010), *El Pais* (2010 and 2007), *The Independent* (2010), *The Scotsman* (2011, 2010x2), *The Herald* (2013, 2010), *Associate Press* (2010), *Metro* (2010), *The Engineer* (2017, 2014, 2010), *Nature Geoscience* (2010), *Agencia EFE* (2010, 2009x3), *Lanza* (2010), *Edinburgh University Science Magazine* (2009), *Lloyd's List (2007) and El Mundo* (2007x2).

Radio: BBC Wales (2016), BBC World Service *Click* (2016), BBC 4 *Inside Science* (2014), BBC 4 *Material World* (2013), BBC Wales (2011), LBC *97.3* London (2011 x2), BBC *Scotland* (2010), *Radio Forth 2* (2010), *Radio Exterior de España* (2010) and *Cadena* SER *Cuidad Real* (2010).

Online Media: *BBC Mundo* (2017), *Scientific American* (2016), ENSIA (2016), FiveThirtyEight (2016), Imperial Podcast (2015 x2), iflscience.com (2015) (>27,200 likes, 900 comments), news.sciencemag.org (2014), *Institute of Mechanical Engineers* (2014), *American Geophysical Union* (2013), European Geoscience Union *Geolog* (2012), *DotEarth NYT.com* (2010), *Xinhuanet* (2010), *Physorg.com* (2010), *sciencedaily.com* (2010), and *La Vanguardia* (2009).

16. Detailed Publication List

16.1 Book Contributions

6. **Experimental Methods and Scales in Smouldering Wildfires,** by E Christensen, Y Hu, F Restuccia, MA Santoso, X Huang, G Rein, Chapter 19 in Fire effects in soil properties (Ed P Pereira), CSIRO, 2018 (in press).
5. **Smouldering Wildfires and Soils,** by MA Santoso, X Huang, N Prat-Guitart, E Christensen, Y Hu, G Rein, Chapter 14 in Fire effects in soil properties (Ed P Pereira), CSIRO, 2018 (in press).
4. **Smoldering Combustion**, by G Rein, Chapter 19 in: SFPE Handbook of Fire Protection Engineering, 5th Edition, pp 581-603, Springer, 2016. doi: 10.1007/978-1-4939-2565-0_19.
   http://hdl.handle.net/10044/1/41594
3. **Smouldering Fires and Natural Fuels**, by G Rein, Chapter 2 in: Fire Phenomena in the Earth System – An Interdisciplinary Approach to Fire Science, pp. 15–34, Belcher (editor). Wiley and Sons, 2013. ISBN 9780470657485. DOI: 10.1002/9781118529539.ch2.
   http://hdl.handle.net/10044/1/28419
2. **One-dimensional and multi-scale modelling of tunnel ventilation and fires**, by F Colella, G Rein, R Borchiellini, V Verda, Chapter 17 in: Handbook of Tunnel Fire Safety, Beard and Carvel (editors), 2nd ed, ICE Publishing, 2011. ISBN 9780727741530. DOI: 10.1680/htfs.41530.365.
   http://www.icevirtuallibrary.com/doi/abs/10.1680/htfs.41530.365
1. **Physical Parameters Affecting Fire Growth**, by JL Torero and G Rein, Chapter 3 in: Fire Retardancy of Polymeric Materials, 2nd Ed, Editors Wilkie and Morgan, CRC Press, Taylor & Francis, 2009. ISBN 9781420083996.
   http://www.crcpress.com/product/isbn/9781420083996

16.2 Edited Books

2. **Peat Fires - Origins and Combustion,** Volume 4 of Coal and Peat Fires: A Global Perspective, Stracher, Prakash, Sokol and Rein (editors), Elsevier Geoscience, 2015.
1. **The Dalmarnock Fire Tests: Experiments and Modelling**, Editors: Rein, Abecassis-Empis and Carvel, 221 pages, University of Edinburgh, 2007. ISBN 978-0955749704.
   http://hdl.handle.net/1842/2037

16.3 Journal Papers

105. J. Zhu, W. Jahn, G. Rein, Computer simulation of sunlight concentration due to façade shape: application to the 2013 Death Ray at Fenchurch Street London, **Journal of Building Performance Simulation** (in press), 2019.
   https://doi.org/10.1080/19401493.2018.1538389

104. G. Vigne, C. Gutierrez-Montes, A. Cantizano, W. Węgrzynski, G. Rein, Review and Validation of the Current Smoke Plume Entrainment Models for Large-Volume Buildings, **Fire Technology** (in press) 2019.
https://doi.org/10.1007/s10694-018-0801-4
103. F. Richter, G. Rein, Heterogeneous kinetics of timber charring at the microscale, **Journal of Analytical and Applied Pyrolysis** 138, pp. 1-9, 2019.
https://doi.org/10.1016/j.jaap.2018.11.019
102. H. Yuan, F. Restuccia, F. Richter, G. Rein, A computational model to simulate self-heating ignition across scales, configurations, and coal origins, **Fuel** 236, pp. 1100-1109, 2019.
https://doi.org/10.1016/j.fuel.2018.09.065
101. F. Restuccia, O.Masek, R.M.Hadden, G. Rein, Quantifying self-heating ignition of biochar as a function of feedstock and the pyrolysis reactor temperature, **Fuel** 236, pp. 201-213, 2019.
https://doi.org/10.1016/j.fuel.2018.08.141
100. E. Rackauskaite, P. Kotsovinos, A Jeffers, G Rein, Computational analysis of thermal and structural failure criteria of a multi-storey steel frame exposed to fire, **Engineering Structures** 180, pp. 524-543, 2019.
https://doi.org/10.1016/j.engstruct.2018.11.026
99. M. Bonner, G. Rein, Flammability and Multi-objective Performance of Building Façades: Towards Optimum Design, **International Journal of High-Rise Buildings** 7 (4), pp. 363-374, 2018.
https://doi.org/10.21022/IJHRB.2018.7.4.363
98. F. Richter, G. Rein, The Role of Heat Transfer Limitations in Polymer Pyrolysis at the Microscale, **Frontiers in Mechanical Engineering** 4:18, 2018.
https://doi.org/10.3389/fmech.2018.00018
97. W. Zhenhua, Y. Fei, G. Rein, J. Juncheng, H. Xuefeng, H. Junhua, S. Wei, Flammability hazards of typical fuels used in wind turbine nacelle, **Fire and Materials** 42 (7), pp. 770-781, 2018.
https://doi.org/10.1002/fam.2632
96. I. Vermesi, F. Restuccia, C. Walker-Ravena, G. Rein, Carbon Monoxide Diffusion Through Porous Walls: Evidence Found in Incidents and Experimental Studies, **Frontiers in Built Environment** 4:44, 2018.
https://doi.org/10.3389/fbuil.2018.00044
95. N. Roenner, G Rein, Convective ignition of polymers: New apparatus and application to a thermoplastic polymer, **Proceedings of the Combustion Institute** 37 (3), pp. 4193-4200, 2018.
https://doi.org/10.1016/j.proci.2018.05.180
94.F Richter, A Atreya, P Kotsovinos, The effect of chemical composition on the charring of wood across scales, **Proceedings of the Combustion Institute** 37 (3), 4053-4061, 2018.
https://doi.org/10.1016/j.proci.2018.06.080
93. X. Huang, G. Rein, Upward-and-downward spread of smoldering peat fire, **Proceedings of the Combustion Institute** 37 (3), pp. 4025-4033, 2018.
https://doi.org/10.1016/j.proci.2018.05.125
92. Y. Hu, Transient gas and particle emissions from smouldering combustion of peat, **Proceedings of the Combustion Institute** 37 (3), pp. 4035-4042, 2018.
https://doi.org/10.1016/j.proci.2018.06.008
91. Y Hu, N Fernandez-Anez, TEL Smith, G Rein, Review of emissions from smouldering peat fires and their contribution to regional haze episodes, **International Journal of Wildland Fire** (in press), 2018.
https://doi.org/10.1071/WF17084
90. C Roulston, C Paton-Walsh, TEL Smith, EA Guerette, S Evers, CM Yule, G Rein, GR vander Werf, Fine Particle Emissions From Tropical Peat Fires Decrease Rapidly With Time Since Ignition, **Journal of Geophysical Research: Atmospheres** (in press), 2018.
http://dx.doi.org/10.1029/2017JD027827
89. P Ayala, A Cantizano, G Rein, C Gutierrez-Montes, Factors Affecting the Make-Up Air and Their Influence on the Dynamics of Atrium Fires, **Fire Technology** 54 (4), pp 1067–1091, 2018.
https://doi.org/10.1007/s10694-018-0725-z
88. M Heidari, F Robert, D Lange, G Rein, Probabilistic Study of the Resistance of a Simply-Supported Reinforced Concrete Slab According to Eurocode Parametric Fire, **Fire Technology** (in press), 2018.
https://doi.org/10.1007/s10694-018-0704-4

87. X Huang, G Rein, Downward spread of smouldering peat fire: the role of moisture, density and oxygen supply, **International Journal of Wildland Fire** 26, pp. 907-918, 2017. https://doi.org/10.1071/WF16198
86. G Rein, X Huang, F Restuccia, T McArdle, Detection of landmines in peat soils by controlled smouldering combustion: Experimental proof of concept of O-Revealer, **Experimental Thermal and Fluid Science** 88, pp. 632–638, 2017. http://dx.doi.org/10.1016/j.expthermflusci.2017.07.016
85. E Rackauskaite, P Kotsovinos, A Jeffers, G Rein, Structural analysis of multi-storey steel frames exposed to travelling fires and traditional design fires, **Engineering Structures** 150, pp. 271-287, 2017. https://doi.org/10.1016/j.engstruct.2017.06.055
84. F Richter, G Rein, Pyrolysis kinetics and multi-objective inverse modelling of cellulose at the microscale, **Fire Safety Journal** 91, pp. 191-199, 2017. https://doi.org/10.1016/j.firesaf.2017.03.082
83. I Vermesi, M DiDomizio, F Richter, E Weckman, G Rein, Pyrolysis and spontaneous ignition of wood under transient irradiation: Experiments and a-priori predictions, **Fire Safety Journal** 91, pp. 218-225, 2017. https://doi.org/10.1016/j.firesaf.2017.03.081
82. F Restuccia, X Huang, G Rein, Self-ignition of natural fuels: Can wildfires of carbon-rich soil start by self-heating?, **Fire Safety Journal** 91, pp. 828-834, 2017. https://doi.org/10.1016/j.firesaf.2017.03.052
81. N Fernandez-Añez, K Christensen, G Rein, Two-dimensional model of smouldering combustion using multi-layer cellular automaton: The role of ignition location and direction of airflow, **Fire Safety Journal** 91, pp. 243-251, 2017. https://doi.org/10.1016/j.firesaf.2017.03.009
80. N Roenner, K Hutheesing, A Fergusson, G Rein, Simultaneous improvements in flammability and mechanical toughening of epoxy resins through nano-silica addition, **Fire Safety Journal** 91, pp. 200-207, 2017. doi:10.1016/j.firesaf.2017.03.010. https://doi.org/10.1016/j.firesaf.2017.03.010
79. E Rackauskaite, P Kotsovinos, G Rein, Structural response of a steel-frame building to horizontal and vertical travelling fires in multiple floors, **Fire Safety Journal** 91, pp. 542-552, 2017. https://doi.org/10.1016/j.firesaf.2017.04.018
78. E Rackauskaite, P Kotsovinos, G Rein, Model parameter sensitivity and benchmarking of the explicit dynamic solver of LS-DYNA for structural analysis in case of fire, **Fire Safety Journal** 90, pp. 123-138, 2017. https://doi.org/10.1016/j.firesaf.2017.03.002
77. I Vermesi, G Rein, F Colella, M Valkvist, G Jomaas, Reducing the computational requirements for simulating tunnel fires by combining multiscale modelling and multiple processor calculation, **Tunnelling and Underground Space Technology** 67, pp. 146-153, 2017. https://doi.org/10.1016/j.tust.2016.12.016
76. F Restuccia, N Ptak, G Rein, Self-Heating Behavior and Ignition of Shale Rock, **Combustion and Flame** 176, pp. 213–219, 2017. http://dx.doi.org/10.1016/j.combustflame.2016.09.025
75. X Huang, G Rein, Interactions of Earth atmospheric oxygen and fuel moisture in smouldering wildfires, **Science of the Total Environment** 572, pp. 1440-1446, 2016. http://hdl.handle.net/10044/1/53140
74. N Prat-Guitart, G Rein, RM Hadden, CM Belcher, JM Yearsley, Effects of spatial heterogeneity in moisture content on the horizontal spread of peat fires, **Science of the Total Environment** 572, pp. 1422–1430, 2016. http://dx.doi.org/10.1016/j.scitotenv.2016.02.145
73. N Prat-Guitart, G Rein, RM Hadden, CM Belcher, JM Yearsley, Propagation probability and spread rates of self-sustained smouldering fires under controlled moisture content and bulk density conditions, **International Journal of Wildland Fire** 25 (4), pp. 456-465, 2016. http://dx.doi.org/10.1071/WF15103
72. X. Huang, G.Rein, Thermochemical Conversion of Biomass in Smouldering Combustion across Scales: the Roles of Heterogeneous Kinetics, Oxygen and Transport Phenomena, **Bioresource Technology** 207, pp 409-421, 2016. **Cover article**. http://dx.doi.org/10.1016/j.biortech.2016.01.027

71. X. Huang, F Restuccia, M Gramola, G Rein, Experimental Study of the Formation and Collapse of an Overhang in the Surface Spread of Smouldering Peat Fires, **Combustion and Flame** 168, pp. 393–402, 2016.
http://dx.doi.org/10.1016/j.combustflame.2016.01.017
70. I Vermesi, N Roenner, P Pironi, R Hadden, G Rein, Pyrolysis and Ignition of a Polymer by Transient Irradiation, **Combustion and Flame** 163, pp. 31–41, 2016.
http://dx.doi.org/doi:10.1016/j.combustflame.2015.08.006
69. S Wang, H Chen, N Liu, X Huang, G Rein, Ignition of Low-density Expandable Polystyrene Foam by a Hot Particle, **Combustion and Flame** 162, pp. 4112–4118, 2015.
http://hdl.handle.net/10044/1/53141
68. E Rackauskaite, C Hamel, A Law, G Rein, Improved formulation of travelling fires and application to concrete and steel structures, **Structures** 3, pp. 250–260, 2015. doi: 10.1016/j.istruc.2015.06.001
http://dx.doi.org/10.1016/j.istruc.2015.06.001
67. CD Ang, G Rein, J Peiro, R Harrison, Simulating longitudinal ventilation flows in long tunnels: Comparison of full CFD and multi-scale modelling approaches in FDS6, **Tunnelling and Underground Space Technology** 52, pp 119–126, 2016.
http://dx.doi.org/10.1016/j.tust.2015.11.003
66. P Ayala, A Cantizano, G Rein, G Vigne, C Gutierrez-Montes, Fire Experiments and Simulations in a Full-Scale Atrium Under Transient and Asymmetric Venting Conditions, **Fire Technology** 52 (1), pp 51–78, 2016.
http://dx.doi.org/10.1007/s10694-015-0487-9
65. X Huang, G Rein, Computational Study of Critical Moisture and Depth of Burn in Peat Fires, **International Journal of Wildland Fire** 24, pp. 798–808, 2015.
http://dx.doi.org/10.1071/WF14178
64. H Chen, G Rein, N Liu, Numerical investigation of downward smoldering combustion in an organic soil column, **International Journal of Heat and Mass Transfer** 84, pp. 253–261, 2015.
http://dx.doi.org/10.1016/j.ijheatmasstransfer.2015.01.016
63. T Hasan, J Gerhard, R Hadden, G Rein, Self-sustaining Smouldering Combustion of Coal Tar for the Remediation of Contaminated Soil: Two-Dimensional Experiments and Computational Simulations, **Fuel** 150, pp. 288–297, 2015. doi: 10.1016/j.fuel.2015.02.014.
http://dx.doi.org/10.1016/j.fuel.2015.02.014
62. N Bal, G Rein, On the effect of inverse modelling and compensation effects in computational pyrolysis for fire scenarios, **Fire Safety Journal** 72, pp. 68–76, 2015. doi:10.1016/j.firesaf.2015.02.012.
http://dx.doi.org/10.1016/j.firesaf.2015.02.012
61. F Jervis, G Rein, Experimental study on the burning behavior of Pinus halepensis needles using small-scale fire calorimetry of live, aged and dead samples, **Fire and Materials** 40 (3), pp. 385–395, 2016. doi:10.1002/fam.2293.
http://dx.doi.org/10.1002/fam.2293
60. M Turetsky, B Benscoter, S Page, G Rein, GR van der Werf, A Watts, Global vulnerability of peatlands to fire and carbon loss, (invited progress paper), **Nature Geoscience** 8 (1), pp. 11-14, 2015. doi:10.1038/NGEO2325.
http://dx.doi.org/10.1038/NGEO2325
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http://jgs.lyellcollection.org/content/early/2015/01/19/jgs2014-082
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http://dx.doi.org/10.5194/nhess-14-1491-2014
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http://dx.doi.org/10.1016/j.combustflame.2013.12.013
53. P Boulet, G Parent, Z Acem, A Collin, M Försth, N Bal, G Rein, J Torero, Radiation emission from a heating coil or a halogen lamp on a semitransparent sample, **International Journal of Thermal Sciences** 77, pp. 223–232, 2014. doi: 10.1016/j.ijthermalsci.2013.11.006.
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http://dx.doi.org/10.1016/j.proci.2012.05.060
45. J Stern-Gottfried, G Rein, Travelling Fires for Structural Design. Part II: Design Methodology, **Fire Safety Journal** 54, pp. 96–112, 2012. doi:10.1016/j.firesaf.2012.06.011.
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