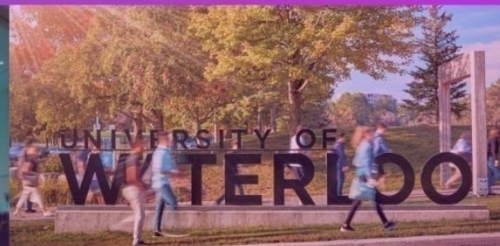
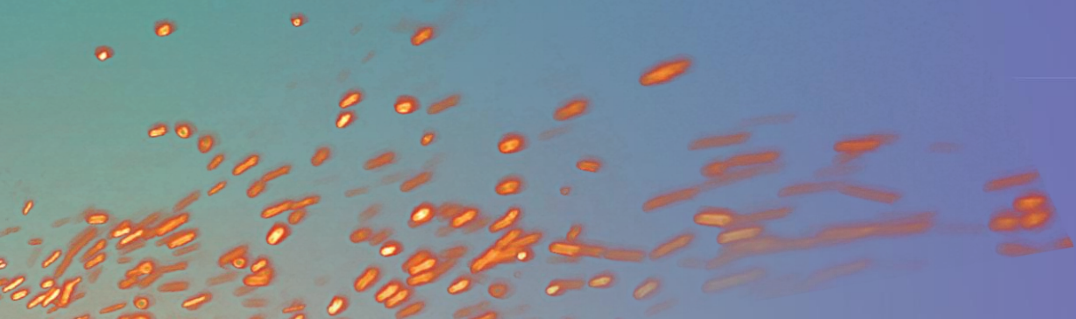




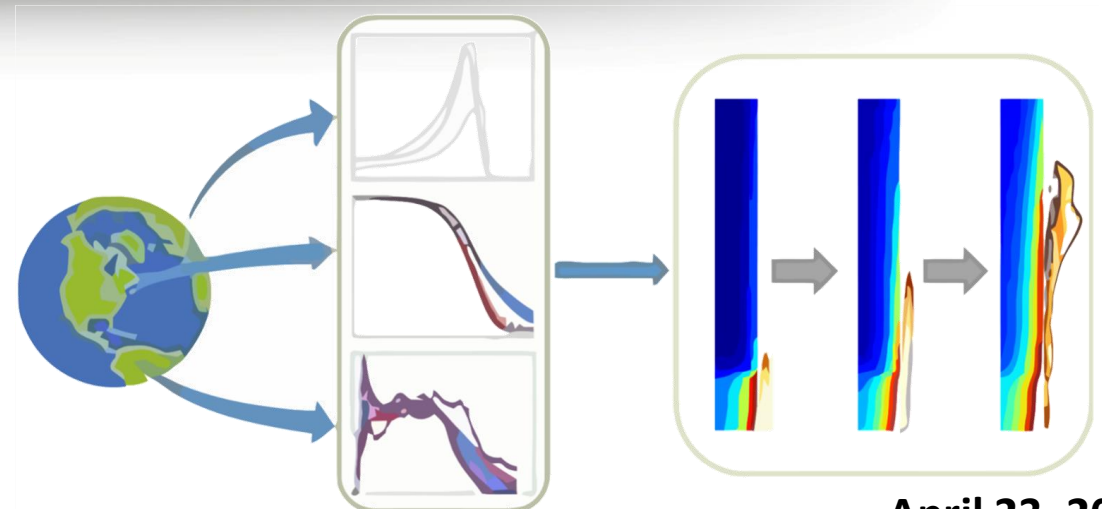
Measurement and Computation of Fire Phenomena The MaCFP Condensed Phase Working Group

Introduction



Organizing Committee:

- Benjamin Batiot (University of Poitiers, France)
- Morgan Bruns (Virginia Military Institute, USA)
- Simo Hostikka (Aalto University, Finland)
- Isaac Leventon (National Institute of Standards and Technology, USA)
- Yuji Nakamura (Toyohashi University of Technology, Japan)
- Pedro Reszka (Universidad Adolfo Ibáñez, Chile)
- Thomas Rogaume (University of Poitiers, France)
- Stanislav Stoliarov (University of Maryland, USA)



- “We think ... that the study of fire growth [perhaps the most difficult problem area in fire safety science] ... is now reaching the point where a sound scientific basis is appearing and engineering applications are becoming possible...
- What is required is international cooperation in resolving the remaining scientific problems so that we **harmonize** our fire safety objectives, design scenarios, hazard assessment, **methodologies, models and their verification** for eventual incorporation into a common set for fire safety engineering tools. More specifically, we suggest the **formation of a series of technical workshops** having limited attendance to provide the needed **international collaboration.**”

Emmons et al.
Letter to the Editor
Fire Safety Journal 1994



Fire Safety Journal 23 (1994) 327
Elsevier Science Limited
Printed in Northern Ireland
0379-7112/94/\$07-00

0379-7112(94)00016-6

Letter to the Editor

(Received and accepted 30 June 1994).

Dear Sir

We, the undersigned, have for many years been participants and observers of the international development of fire safety science and its applications. Some applications of fire research have been rapid, some slow. There is a general recognition that one of the most difficult, perhaps *the* most difficult problem area, is that of fire growth, including reaction to fire. Lack of progress in this core area has been a serious obstacle to the world wide development of a design methodology to replace traditional prescriptive methods.

We think, partly as a result of our participation in the recent Fourth International Symposium of Fire Safety Science, that the study of fire growth, especially in buildings—the stage of development of fire that puts people at risk—is now reaching the point where a sound scientific basis is appearing and engineering applications are becoming possible. Studies of fire initiation, fire growth and spread, smoke generation and transport are now all on the threshold of being mature enough to be exploited. What is required is international cooperation in resolving the remaining scientific problems so that we harmonize our fire safety objectives, design scenarios, hazard assessment, methodologies, models and their verification for eventual incorporation into a common set for fire safety engineering tools. More specifically, we suggest the formation of a series of technical workshops having limited attendance to provide the needed international collaboration.

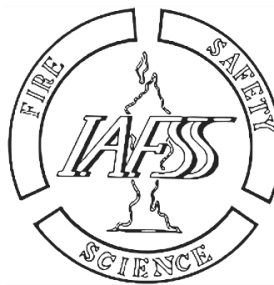
The above position is that of the authors and not necessarily that of the International Association of Fire Safety Science nor that of the Fire Safety Journal.

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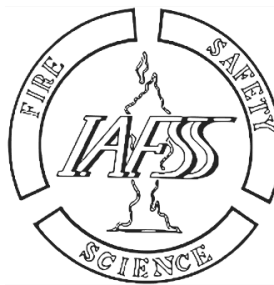
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- Develop standard data set formats for experimental data on pyrolysis;
- Develop requirements for data set quality and establishing a data review committee;
- Incorporate compliant data into the existing MaCFP data repository;
- Create a database of pyrolysis property sets;
- Develop minimum requirements for numerical pyrolysis models;
- Organize a pyrolysis modeling discussion group.

“The purpose of the Condensed Phase Phenomena subgroup is to facilitate data sharing and model development to improve computational predictions of thermal degradation and pyrolysis in fire scenarios.”



- To catalogue current approaches used to parameterize pyrolysis models;
- To develop standard data set formats for experimental data on pyrolysis;
- To quantify the interlaboratory variability for comparable experimental datasets;
- To assess the impact of the variability of model parameters on predictions of sample burning rate; and
- To present a rigorous analysis of these results in the *Fire Safety Journal*.



How far we've come

- 1996 Cone Calorimeter Round Robin:

Reporting of results:

“The laboratories were all instructed to deliver their data in FDMS format [8] [9] on floppy disks.”

- 2021 MaCFP Workshop

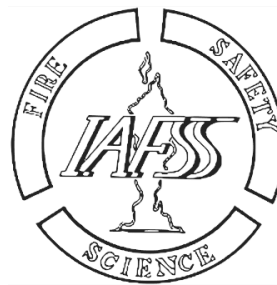
- Main Website: <https://iafss.org/macfp-condensed-phase-phenomena/>
- Github Data repository: <https://github.com/MaCFP/matl-db>
- Discussion Forum: <https://groups.google.com/g/macfp-condensed-phase-discussions>
- Virtual Coordination and Communication
 - Guidelines for Participation, Preliminary Summary of Results
 - Virtual Seminars: Summer 2020, Spring 2021

The collage displays four key resources for the MaCFP Condensed Phase Phenomena subproject:

- Top Left:** Screenshot of the MaCFP website (The International Association for Fire Safety Science) showing the 'MaCFP Condensed Phase Phenomena' page with background information, objectives, and a virtual discussion forum link.
- Top Right:** Screenshot of the GitHub repository 'MaCFP/matl-db', showing a list of files and folders related to experimental measurements and data processing.
- Bottom Left:** Screenshot of the Google Groups discussion forum 'MaCFP Condensed Phase Discussions', showing a list of recent conversations and topics.
- Bottom Right:** A document titled 'Guidelines for Participation in the 2021 MaCFP Condensed Phase Workshop', dated April 23, 2021, from Waterloo, Canada. It includes a diagram showing the workflow from data collection to model development and validation.

Participants

Exper.	Model	Participating Institution	City/State, Country
X	X	Aalto University	Espoo, Finland
X	X	Dansk Brand og Sikringsteknisk Institut, (DBI)	Copenhagen, Denmark
		Lund University	Lund, Sweden
X		FM Global	Massachusetts, USA
X	X	Imperial College of London (GIDAZE+)	England, UK
X		Hong Kong Polytechnic University	Hong Kong
X		Laboratoire Central de la Préfecture de Police (LCPP)	Paris, France
X	X	National Institute of Standards and Technology (NIST)	Maryland, USA
X	X	Sandia National Laboratories	New Mexico, USA
X		Technical Institute of Fire Protection in Prague (TIFP)	Prague, Czech Republic
X	X	University of Central Lancashire (UCLAN)	England, UK
X		University of Dayton Research Institute (UDRI)	Ohio, USA
X		University of Edinburgh	Scotland, UK
X	X	University of Maryland (UMD)	Maryland, USA
X	X	University of Lille - Unité Matériaux et Transformations (UMET)	Lille, France
	X	University of Wuppertal (Bergische Universität Wuppertal)	Wuppertal, Germany
X		University of Queensland (UQ)	Queensland, Australia
	X	Virginia Military Institute (VMI)	Virginia, USA



- 9:00 AM Introduction and Overview; presented by Isaac Leventon
- 9:05 AM Experimental Results and Data Management; presented by Isaac Leventon
- 9:35 AM Discussion: Experimental Results, Future Materials & Experiments; managed by Isaac Leventon

- 10:05 AM Model Parameters and Small-scale Modeling Predictions; presented by Morgan Bruns
- 11:00 AM Discussion: Small-scale Modeling Results; moderated by Morgan Bruns

- 11:30 AM Flame Spread Experiments and Next Steps; presented by Stanislav Stoliarov
- 11:45 AM Discussion: Flame Spread Experiments and Next Steps; moderated by Stanislav Stoliarov
- 12:00 PM Workshop Ends

