

**Program of the 2nd COST Topical Workshop:
Kinetic studies using laminar flame**

*Tuesday 25th June 2013 (prior to ECM 2013)
Lund University, Sweden*

- 8:00 – 13:00** **Onsite registration**
- 8:50 – 8:58** **Welcoming talk by F. Battin - Leclerc**
- 8:58 – 9:00** **Technical notes and announcements by A. Konnov**

Session 1 – Chair: Frédérique Battin-Leclerc

- | <i>Time</i> | <i>Title of the presentation</i> |
|----------------------|--|
| 9:00 – 9:20 | Prompt-NO formation in low pressure flames: Importance of thermochemical properties
Lamoureux, N., El Bakali, A., Desgroux, P.
<i>Lab. PC2A, UMR8522/CNRS/Lille1, Université Lille1, Villeneuve d'Ascq, France</i> |
| 9:20 – 9:40 | Effect of hydrogen addition on NO_x formation in high pressure counter-flow premixed CH₄/air flames
Molet, J., Idir, M., De Persis, S., Pillier, L.
<i>ICARE - Institut de Combustion, Aérodynamique, Réactivité, Environnement – UPR CNRS 3021, Orléans, France</i> |
| 9:40 – 10:00 | Absolute, spatial mole fraction profiles of CO, C₂H₂, OH, H₂O and CH₄ in an atmospheric, laminar, counter-flow diffusion flame
Wagner, S. ^{1,2} , Klein, M. ¹ , Kathrotia, T. ³ , Riedel, U. ³ , Kissel, T. ¹ , Dreizler, A. ¹ , Ebert, V. ^{1,2}
¹ <i>Center of Smart Interfaces, TU Darmstadt, Darmstadt, Germany</i>
² <i>Physikalisch-Technische Bundesanstalt, Braunschweig, Germany</i>
³ <i>Institute of Combustion Technology, German Aerospace Center, Stuttgart, Germany</i> |
| 10:00 – 10:20 | Experimental and kinetic modeling study of premixed benzene/oxygen/argon flames with comprehensive equivalence ratios at low pressure
Yang, J. ¹ , Zhao, L. ¹ , Cheng, Z. ¹ , Cai, J. ¹ , Qi, F. ^{1,2} , Li, Y. ^{1,2}
¹ <i>National Synchrotron Radiation Laboratory, University of Science and Technology of China, Hefei, Anhui, P. R. China</i>
² <i>State Key Laboratory of Fire Science, University of Science and Technology of China, Hefei, Anhui, P. R. China</i> |
| 10:20 – 10:40 | Experimental and modeling study of combustion chemistry of furan family in laminar premixed low-pressure flames
Tran, L.-S. ¹ , Togbé, C. ² , Liu, D. ² , Felsmann, D. ² , Oßwald, P. ² , Glaude, P.-A. ¹ , Sirjean, B. ¹ , Fournet, R. ¹ , Battin-Leclerc, F. ¹ , Kohse-Höinghaus, K. ²
¹ <i>Laboratoire Réactions et Génie des Procédés (LRGP)-CNRS, Nancy, France</i>
² <i>Department of Chemistry, Bielefeld University, D-33615 Bielefeld, Germany</i> |
| 10:40 – 11:20 | Coffee break + posters |

Session 2 – Chair: Fei Qi

- | <i>Time</i> | <i>Title of the presentation</i> |
|----------------------|---|
| 11:20 – 12:10 | Invited Lecture: Laminar Flames and Combustion Chemistry: Current Status and Challenges
Egolfopoulos, F. N.
<i>University of Southern California, Los Angeles, California, USA</i> |
| 12:10 – 12:30 | On the accurate determination of unstretched laminar burning velocity from spherically expanding flames
Varea, E. ¹ , Lefebvre, A. ¹ , Modica, V. ¹ , Renou, B. ¹ , Rousselle, C. ² , Halter, F. ² , Chen, Z. ³
¹ <i>CORIA UMR 6614, INSA de Rouen, Saint Etienne du Rouvray, France</i>
² <i>PRISME, Université d'Orléans, Orléans, France</i>
³ <i>Peking University, Beijing, China</i> |
| 12:30 – 12:50 | Optimization of combustion mechanisms based on ignition delay time and flame velocity measurements
Turányi, T. ¹ , Olm, C. ¹ , Nagy, T. ¹ , Varga, T. ¹ , Pálvölgyi, R. ¹ , Valkó, É. ¹ , Vincze, G. ¹ , Curran, H. ² , Zsély, I. G. ¹
¹ <i>Institute of Chemistry, Eötvös University (ELTE), Budapest, Hungary</i>
² <i>Combustion Chemistry Centre, NUIG, Galway, Ireland</i> |
| 12:50 – 14:00 | Lunch + posters |

Session 3 – Chair: Tamas Turányi

- | <i>Time</i> | <i>Title of the presentation</i> |
|----------------------|---|
| 14:00 – 14:50 | Invited Lecture: The Heat-flux method for stabilizing adiabatic flames: limitations and further improvements
De Goey, L.P.H.
<i>Combustion Technology, Eindhoven University of Technology, Eindhoven, The Netherlands</i> |
| 14:50 – 15:10 | Laminar Premixed Stretchless Syngas Flames at Elevated Pressure
Goswami, M. ¹ , Bastiaans, R.J.M. ¹ , De Goey, P. ¹ , Konnov, A. ²
¹ <i>Combustion Technology, Eindhoven University of Technology, Eindhoven, The Netherlands</i>
² <i>Section of Combustion Physics, Lund University, Lund, Sweden</i> |
| 15:10 – 15:30 | Development and validation of combustion reaction mechanism model for 1-hexene flames
Nawdiyal, A. ¹ , Hansen, N. ² , Seidel, L. ¹ , Mauß, F. ¹ , Zeuch, F. ³
¹ <i>Chair of Thermodynamics and Thermal Process Engineering – Brandenburg University of Technology, Cottbus, Germany</i>
² <i>Combustion Research Facility, Sandia National Laboratories, Livermore, CA, USA</i>
³ <i>Institut für Physikalische Chemie, Georg-August-Universität, Göttingen, Germany</i> |
| 15:30 – 16:00 | Coffee break + posters |

Session 4 – Chair: Thomas Gerber

- | <i>Time</i> | <i>Title of the presentation</i> |
|----------------------|---|
| 16:00 – 16:20 | Methyl pentanoate flame structure measured by MBMS mass spectrometry with synchrotron photoionization and soft electron-impact ionization. Validation of kinetic model for methyl pentanoate combustion.
Korobeinichev, O.P. ¹ , Yakimov, S.A. ¹ , Knyazkov, D.A. ¹ , Shmakov, A.G. ¹ , Bolshova, T.A. ¹ , Gerasimov, I.E. ¹ , Hansen, N. ² , Westbrook, C. ³ , Dayma, G. ⁴
¹ <i>Institute of Chemical Kinetics and Combustion, Novosibirsk, Russia</i>
² <i>Sandia National Laboratories, USA</i>
³ <i>Lawrence Livermore National Laboratories, USA</i>
⁴ <i>Centre National de la Recherche Scientifique, Orléans, France</i> |
| 16:20 – 16:40 | Trends in laminar burning velocities of formate and acetate esters
Nilsson, E. J. K., Bnayan, A., Konnov, A.
<i>Division of Combustion Physics, Lund, Sweden</i> |
| 16:40 – 17:00 | A chemical kinetic investigation on the burning velocity of isopropanol
Kick, T., Braun-Unkhoff, M., Riedel, U.
<i>Institute of Combustion Technology, German Aerospace Center (DLR), Stuttgart, Germany</i> |
| 15:30 – 16:00 | Coffee break + posters |

Session 5 – Chair: Edward Blurock

- | <i>Time</i> | <i>Title of the presentation</i> |
|----------------------|---|
| 17:00 – 17:20 | Computational combustion of jet propulsion fuels: reduced kinetic models of surrogate fuels for laminar flames
Dooley, S. ¹ , Dryer, F. L. ² , Farouk, T. I. ³ , Won, S. H. ²
¹ <i>University of Limerick, Limerick, Ireland</i>
² <i>Princeton University, Princeton, NJ, USA</i>
³ <i>University of South Carolina, Columbia, SC, USA</i> |
| 17:20 – 17:40 | An experimental and modeling study of soot formation in laminar coflow diffusion flames of conventional and alternative jet fuel
Saffaripour, M. ¹ , Veshkini, A. ¹ , Kholghy, M. ¹ , Dworkin, S. ² , Thomson, M. J. ¹
¹ <i>University of Toronto, Toronto, Canada</i>
² <i>Ryerson University, Toronto, Canada</i> |
| 17:40 – 18:00 | Kinetic modeling and sensitivity analysis of detailed soot particle size distribution in burner-stabilized, stagnation flames
Yapp, E. K. Y., Kraft, M.
<i>University of Cambridge, Cambridge, UK*</i> |

Poster sessions

Collaborative Study for Accurate Measurements of Laminar Burning Velocity

Beeckmann, J.¹, Chaumeix, N.², Dagaut, P.², Dayma, G.², Egolfopoulos, F.³, Foucher, F.⁴, De Goey, P.⁵, Halter, F.⁴, Konnov, A.⁶, Mounaïm-Rousselle, C.⁴, Renou, B.⁷, Pitsch, H.¹, Varea, E.⁷, Volkov, E.⁵

¹*Institute for Combustion Technology, RWTH Aachen University, Aachen, Germany*

²*CNRS-ICARE, Orléans, France*

³*University of Southern California, Los Angeles, United States of America*

⁴*PRISME, Université d'Orléans, Orléans, France*

⁵*University of Technology Eindhoven, Eindhoven, Netherlands*

⁶*Division of Combustion Physics, Lund University, Lund, Sweden*

⁷*CORIA - INSA de Rouen, Rouen, France*

Size-dependent melting of polycyclic aromatic hydrocarbon (PAH) nanoclusters: A molecular dynamic study

Chen, D., Totton, T., Kraft, M.

University of Cambridge, Cambridge, United Kingdom

Numerical investigation of the laminar flame perturbation by a sampling nozzle in mass spectroscopy measurements

Deng, L., Wlokas, I., Kempf, A.

IVG, Chair for Fluidynamics, Univ. of Duisburg-Essen, Duisburg, Germany

Singularity of growth of carbon nanoparticles in pyrolysis flames

Emelianov, A.¹, Eremin, A.¹, Jander, H.², Wagner, H. G.²

¹*Joint Institute for high temperatures RAS, Moscow, Russia*

²*Institute für Physikalische Chemie, University Göttingen, Göttingen, Germany*

Intracavity Laser Absorption Spectroscopy study of laminar flames

Fomin, A.¹, Poliak, M.¹, Rahinov, I.², Cheskis, S.¹

¹*Tel Aviv University, Tel Aviv, Israel*

²*The Open University of Israel, Raanana, Israel*

A novel method for determination of the chemical effect CO₂ dilution on laminar burning velocity

Gurevich, N. A.

The Gas Institute, National Academy of Sciences, Kiev, Ukraine

Temperature and dilution effects on the laminar burning velocity of different ethanol/iso-octane blends

Hartl, S.¹, Rau, F.², Voss, S.², Trimis, D.², Hasse, C.¹

¹*TU Bergakademie Freiberg, Department of Energy Process Engineering and Chemical Engineering, Freiberg, Germany*

²*TU Bergakademie Freiberg, Institute of Thermal Engineering, Freiberg, Germany*

Molecular-beam mass spectrometry in low-pressure flat-flame nanoparticle synthesis

Kluge, S.¹, Wiggers, H.^{1,2}, Schulz, C.^{1,2}

¹*IVG, Institute for Combustion and Gasdynamics, University of Duisburg-Essen, 47048 Duisburg, Germany*

²*CENIDE, Center for Nanointegration Duisburg-Essen, 47048 Duisburg, Germany*

The revealing of complex structure of a flame front and independence of it and combustion constants on turbulent characteristics for homogenous mixture

Kryzhanovskiy, K.

Research Centre "EcoEnergComplex", Kyiv, Ukraine

Poster sessions

Evaluation of the influence of thermodynamic data on burner stabilized flames.

Leon, L.¹, Goos, E.², Klauer, C.¹, Zeuch, T.³, Seidel, L.¹, Mauss, F.¹

¹Brandenburg University of Technology Cottbus, Cottbus, Germany

²DLR German Aerospace Center, Stuttgart, Germany

³Georg-August-Universität Göttingen, Göttingen, Germany

On the extraction of laminar burning velocity from spherical expanding flames

Moccia, V., D'Alessio, J., Rispoli, N.

Istituto Motori – C.N.R., Napoli, Italy

Improvements on gas-phase intermediates modeling in flames

Naydenova, I.¹, Goos, E.², Riedel, U.^{2,3}

¹College of Energy and Electronics, Technical University of Sofia, Bulgaria,

²Institute of Combustion Technology, German Aerospace Center (DLR), Germany

³University of Stuttgart, Germany

Unsteady simulations of flickering cup-burner flame with detailed chemistry

Bitala, P.¹, Pečínka, L.¹, Nevrlý, V.¹, Cuoci, A.², Frassoldati, A.², Dlabka, J.¹, Šidík, J.¹, Vašínek, M.¹, Zelinger, Z.³

¹VŠB – Technical University of Ostrava, Faculty of Safety Engineering, Ostrava, Czech Republic

²Politecnico di Milano, Dipartimento di Chimica, Materiali ed Ingegneria Chimica "G.Natta", Milano, Italy

³J. Heyrovský Institute of Physical Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic

A Kinetic Study of the Di-tert-butyl Peroxide Oxidation

Sebbar, N., Bockhorn, H.

KIT- Karlsruhe Institute of Technology, Engler-Bunte-Institut, Verbrennungstechnik, Karlsruhe, Germany

Numerical modeling of laminar flames using different reduced chemical kinetics and a detailed transport models

Ivanov, M.F.¹, Kiverin, A.D.¹, Liberman, M.A.², Smygalina, A.E.¹

¹Joint Institute for High Temperatures, Russian Academy of Sciences, Moscow, Russia

²Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden

Self-similar chemistry tabulation of multi-component fuel premixed flamelets including filtering effects

Wang, K., Shan, X.W.

Beijing Aeronautical Science and Technology Research Institute, Future Science and Technology Park, Xiaotangshan Town, Changping District, Beijing, China

Limits for experiments in horizontal laminar low-pressure flat flame reactors

Weise, C., Wlokas, I., Kempf, A.

IVG, Chair for Fluid Dynamics, Univ. of Duisburg-Essen, Duisburg, Germany

Reaction Kinetics Modelling of the Hydrogen-Biogas Laminar Flames

Wu, Y., Teng, F.

Department of Chemical and Biological Engineering, University of Sheffield, UK