# Fundamental Understanding and Modelling of High Pressure Turbulent Premixed Combustion (HPTC)
### September 19-20, 2019, Munich/Neubiberg, Germany

# Agenda

| | | Thursday, 19.09.2019 | |
|---|---|---|---|
| 10:30 | | **Opening** 10:30 - 10:40 | |
| | Session 1 - Experimental Investigations 10:40 - 12:00 | *Experimental investigation of the effects of swirl and staging on total cooling effectiveness in an effusion cooled pressurized model gas turbine combustor*<br>*M. Greifenstein, J. Hermann, B. Boehm, A. Dreizler* | |
| 11:00 | | *An Experimental / Numerical Study of Highly Turbulent flames of Hydrogen-enriched Natural Gas at Elevated Pressure*<br>*I. Boxx, J. Pareja, I. Chterev, T. Lipkowitz, A. Kempf* | |
| 11:30 | | *Laser-induced grating spectroscopy for temperature and water vapour measurements at pressure*<br>*F. DeDomenico, T. Guiberti, S. Hochgreb, W.L. Roberts, G. Magnotti* | |
| | | *2D Raman scattering for temperature and major species mole fractions in high-pressure syngas flames*<br>*C. Yang, T. Guiberti, Y. Krishna, H. Tang, G. Magnotti* | |
| 12:00 | | **Lunch** | |
| 12:30 | | | |
| 13:00 | | **Invited Lecture** 13:00 - 14:00<br><br>*Characterization of in-cylinder processes in spark ignition engines using optical diagnostics*<br>*Benjamin Böhm*<br>Technische Universität Darmstadt, Germany | |
| 13:30 | | | |
| 14:00 | | **Invited Lecture** 14:00 - 15:00<br><br>*Siemens Small Gas Turbine Combustion Systems for Power and Gas*<br>*Suresh Sadasivuni*<br>Siemens Industrial Turbomachinery Ltd., Lincoln, UK | |
| 14:30 | | | |

| Time | Session | Content |
|---|---|---|
| 15:00 | | **Coffee and Postersession** |
| 15:30 | | |
| 16:00 | Session 2 - Modeling of High Pressure Flames   15:30 - 17:30 | *The effects of turbulence and mass flow rates on jet stability and the flame transfer function in a lean burn combustor*<br>*N. Treleaven, A. Garmory, G. Page* |
| | | *Investigation of a high pressure jet flame with heat losses using tabulated and finite rate chemistry*<br>*P. Gruhlke, H. Janbazi, I. Wlokas, C. Beck, A.Kempf* |
| 16:30 | | *Statistical analysis of sub–grid progress variable distribution and model verification with DNS data*<br>*M. Hansinger, M. Pfitzner, M. Klein* |
| 17:00 | | *Identification of Flame Transfer Functions using a Hybrid CAA method*<br>*H. Reinhardt, C. Hasse, N. Treleaven, R. Eggels, A. Fischer, C. Lahiri, M. Staufer* |
| | | *Flamelet modelling of turbulent premixed confined jet flames at elevated pressure*<br>*Y. Tanaka, Z.X. Chen, N. Swaminathan* |
| 17:30 | | |
| 18:00 | | **Dinner**<br><br>Bus transfer to Olympiapark at 18:00 |

| Time | Content |
|---|---|
| | *Friday, 20.09.2019* |
| 08:30 | **Invited Lecture** 8:30 - 9:30<br>*Large Eddy simulation of gas turbine engines*<br>*Thierry Poinsot*<br>Institut de Méchanique des Fluides de Toulouse - CNRS, Toulouse, France |
| 09:00 | |

| Time | Session | Talk |
|------|---------|------|
| 09:30 | | **Invited Lecture** 9:30 - 10:30 <br><br> ***Performance and emissions predictions for lean burn aero-engine combustors*** <br> *Marco Zedda* <br> Rolls Royce plc, Derby, UK |
| 10:00 | | |
| 10:30 | | **Coffee** |
| 11:00 | **Session 3 - DNS** <br> 11:00 - 12:40 | ***Hydrodynamic instability in methane/air turbulent premixed flames: pressure effects*** <br> *R. Lamioni, P.E. Lapenna, L. Berger, K. Kleinheinz, A. Attili, H. Pitsch, F. Creta* |
| 11:30 | | ***High Reynolds number premixed jet flames at elevated pressure*** <br> *A. Attili, F. Bisetti, H. Pitsch* |
| | | ***Modelling turbulent scalar fluxes in high pressure turbulent premixed combustion LES*** <br> *C. Kasten, N. Chakraborty, M. Klein* |
| 12:00 | | ***Algebraic and transport equation based FSD modelling in turbulent premixed combustion LES*** <br> *R. Rasool, N. Chakraborty, M. Klein* |
| 12:30 | | **Lunch** |
| 13:00 | | |
| 13:30 | **Session 4 - Supercritical Fluids and DDT** <br> 13:20 – 14:40 | ***Direct Numerical Simulation of the Richtmyer-Meshkov Instability in Reactive and Nonreactive Flows*** <br> *M. Bambauer, J. Hasslberger, M. Klein* |
| | | ***Numerical modelling of pressure piling with inhomogeneous hydrogen/air mixtures*** <br> *B. McCarty-Singh, A. Gambaruto, A. Coclite* |
| 14:00 | | ***Effect chain analysis of supercritical fuel disintegration processes using a LES-based entropy generation approach*** <br> *F. Ries, D. Kütemeier, Y. Li, A. Sadiki* |
| 14:30 | | ***A flamelet approach for high pressure CO2 diluted combustion*** <br> *G. Indelicato, M. Caputo, P.E. Lapenna, G. Magnotti, F. Creta* |