Conference

ACTIVE FLOW & COMBUSTION CONTROL 2018

September 19 – 21, 2018
Berlin, Germany

Organised by the
Collaborative Research Center 1029,
Berlin

sponsored by DFG (German Research Foundation)

Contact
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Scope
After three very successful conferences on Active Flow Control in the years 2006 and 2010 and on Active Flow and Combustion Control (AFCC 2014) in 2014, the AFCC 2018 aims to bring together experts of active control of fluid flows, with a special focus on unsteady aerodynamics, and experts of control of combustion processes, focusing on pulsed detonation and other forms of constant volume combustion. Topics include closed-loop flow control as well as actuators for flow control.
Numerical methods and model reduction techniques are covered as well.

Venue
The conference will take place at the Technische Universität Berlin located in the central area of the western part of the city.

International Program Committee

M. Bellenoue	ENSMA, France
J.P. Bonnet	Poitiers, France
H. Choi	Seoul National University, KOR
L. Cordier	Université de Poitiers, France
M. Gad-el-Hak	Virginia C. University, USA
A. Glezer	Georgia Tech, USA
E. Gutmark	University of Cincinnati, USA
M. Hinze	Universität Hamburg, Germany
R. King	TU Berlin, Germany
R. Niehuis	UniBw München, Germany
B. Noack	LIMSI-CNRS, France
H. Pitsch	RWTH Aachen, Germany
M. Samimy	Ohio University, USA
K. Vogeler	TU Dresden, Germany
D. Williams	IIT Illinois, USA

Registration
For online registration please visit http://www.sfb1029.tu-berlin.de/menue/afcc_2018/

Conference fees:

Participants	270 €
Students	75 €
Accompanying persons	90 €

The registration fee for regular participants and invited speakers includes a conference CD, a book of abstracts, a book published by Springer Verlag with selected papers, which will appear approx. two month after the conference, refreshments during the breaks, the get-together refreshments and the conference dinner. The student fee includes the conference CD, a book of abstracts and the refreshments.

Conference Committee

N. Djordjevic	TU Berlin
F. Haucke	TU Berlin
R. King	TU Berlin
R. Klein	FU Berlin
R. Liebich	TU Berlin
V. Mehrmann	TU Berlin
J. Moeck	TU Berlin
C.O. Paschereit	TU Berlin
D. Peitsch	TU Berlin
J. Reiss	TU Berlin
C. Riehn	TU Berlin
J. Sesterhenn	TU Berlin
P. Stathopoulos	TU Berlin
K. Oberleithner	TU Berlin
D. Williams	IIT Chicago

Chairman
Rudibert King, Technische Universität Berlin

September 18, 2018 (Tuesday)

18:00		Get together

September 19, 2018 (Wednesday)

09:00	King	Opening
		Active Flow Control
09:15	Radespiel	Sparse Model of the Lift Gains of a Circulation Control Wing With Unsteady Coanda Blowing
09:40	Alvi	Implementing Rotating Stall Control in a Radial Diffuser user Using Microjet Arrays
10:05	Williams	Unsteady Roll Moment Control using Active Flow Control on a Delta Wing
10:30	McKeon	Applications of resolvent mode analysis for flow control
10:55		Coffee
		Combustion Control
11:20	Yücel	Effect of the Switching Times on the Operating Behavior of a Shockless Explosion Combustor
11:45	Arnold	Part Load Control for a Shockless Explosion Combustion Cycle
12:10	Zander	Knock control in Shockless Explosion Combustion by extension of excitation time
12:35		Lunch
		Active Flow Control
14:00	Bettrich	High Frequency Boundary Layer Actuation by Fluidic Oscillators at High Speed Test Conditions
14:25	Koch	Model predictive control of Ginzburg–Landau equation
14:50	Schmid	Flow control techniques for manipulating response behavior and suppressing instabilities
15:15	Mihalyovics	A Qualitative Comparison on Unsteady Operated Compressor Stator Flows with Active Flow Control
15:40		Coffee
		Pulsed Detonation Combustion
16:05	Grönsted	System level aspects of aero engine pulsed detonation integration
16:30	Völzke	The influence of the Initial Temperature on DDT Characteristics in a Valveless PDC
16:55	Heinrich	Unsteady Turbine Flow due to a Pressure Gaining Combustion

September 20, 2018 (Thursday)

09:00	Heitz	***Plenary***: Data assimilation to couple experimental and computational turbulent flow dynamics
		Data Assimilation
09:40	Sesterhenn	Mode-based Derivation of Adjoint Equations
10:05	Nadolski	Validation of Under-resolved Numerical Simulations of the PDC Exhaust Flow based on High Speed Schlieren
10:30		Coffee
		Numerical aspects in combustion
10:55	Nikiforakis	Control of condensed-phase explosive behaviour by means of cavities and solid particles
11:20	Reiss	An open and parallel multiresolution framework using block-based adaptive grids
11:45	Tornow	A 1D Multi-Tube Code for the Shockless Explosion Combustion
12:10	Staudacher	tba
12:35		Lunch
		Active Flow Control and Models
14:00	Greenblatt	Transitioning Plasma Actuators to Flight Applications
14:25	Neumann	Representation of Active Flow Control Techniques in Compressor Meanline Simulation
14:50	Albin	Reduced Order Modeling for Multi-Scale Control of Low Temperature Combustion Engines
15:15		Coffee
		Model Reduction
15:40	Heinkenschloss	On the Loewner Framework for Model Reduction of Burgers' Equation
16:05	Coron	Some methods to get rapid stabilization
16:30	Schulze	Model Reduction for a Pulsed Detonation Combuster via Shifted Proper Orthogonal Decomposition
19:00		Conference Dinner

September 21, 2018 (Friday)		
09:00	Paxson	***Plenary**:* Resonant Pulse Combustors: A Reliable Route to Practical Pressure Gain Combustion
		Constant Volume Combustion
09:40	Gutmark	Types of Low Frequency Instabilities in Rotating Detonation Combustors
10:05	Bellenoue	Influence of operating conditions and residual burned gas properties on cyclic operation of constant-volume combustion
10:30		Coffee
		Unsteady Cooling
10:55	Berthold	Experimental Study on the Alteration of Cooling Efficiency Through Excitation-Frequency - Variation Within an Impingement Jet Array with side-wall Induced Crossflow
11:20	Camerlengo	Effects of wall curvature on the dynamics of an impinging jet and resulting heat transfer
11:45	Fietzke	Map Estimation for Impingement Cooling with a Fast Extremum Seeking Algorithm
12:10	King	Closing