

Scope

After two very successful conferences on Active Flow Control in 2006 and 2010, the AFCC 2014 aims to bring together experts on the control of fluid flows with a special focus on the control of combustion processes and of control of unsteady aerodynamics inside turbomachines. Topics include closed-loop flow control as well as actuators for flow control. Numerical methods and model reduction techniques are covered, as is instationary aerodynamics. The control of combustion is especially focused on pulsed detonation engines and constant volume combustion.

Venue

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

Registration & Accommodation

Please visit the conference homepage http://www.sfb1029.tu-berlin.de/menue/afcc_2014/ for detailed information.

Conference fees:

Participants	270 €
Students	75 €
Accompanying persons	60 €

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

R. King	TU Berlin
D. Peitsch	TU Berlin
R. Klein	FU Berlin
V. Mehrmann	TU Berlin
J. Sesterhenn	TU Berlin
W. Nitsche	TU Berlin
J. Moeck	TU Berlin
C.O. Paschereit	TU Berlin
N. Goldin	TU Berlin
E. Gutmark	U of Cincinnati
J.-P. Bonnet	U Poitiers
D. Williams	IIT Chicago

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Chairman

Rudibert King
Technische Universität Berlin



Conference

ACTIVE FLOW & COMBUSTION CONTROL 2014

September 10 – 12, 2014
Berlin, Germany

Organised by the
Collaborative Research Center 1029, Berlin



sponsored by DFG (German Research
Foundation)

Preliminary Program

September 09, 2014 (Tuesday)

18:00 Get together

September 10, 2014 (Wednesday)

08:00 Registration

09:00-09:15 Opening
King

09:15-09:55 Plenary 1
Eulitz:
TBA

09:55-10:20 Haselbach:
Active Control in Aero Engines and its
Application

10:20-10:45 Niehuis, Mack:
Active Boundary Layer Control with Fluidic
Oscillators on Highly-loaded Turbine Airfoils

Coffee

11:10-11:35 Staats, Nitsche, Peltzer:
Active Flow Control on a Highly Loaded
Compressor Cascade with Non Steady Boundary
Conditions

11:35-12:00 Steinberg, Staats, Nitsche, King:
Comparison of Iterative Learning and Repetitive
Control Applied to a Compressor Stator Cascade

12:00-12:25 Hammer, Peter, Phan, Werder, Thamsen,
Meyer, Limbic:
Active Flow Control by Adaptive Blade- Systems

Lunch

14:00-14:25 Lehrheuer, Morcinkowski, Pischinger, Nijs:
Low Temperature Gasoline Combustion -
Potential, Challenges, Process Modeling and
Control

14:25-14:50 Albin, Aguiar da Franca, Varea, Kruse, Pitsch,
Abel:
Potential and Challenges of MILD Combustion
Control for Gas Turbine Applications

14:50-15:15 Jozefik, Kerstein, Schmidt:
Towards a Compressible Reactive Multiscale
Approach Based on One-Dimensional
Turbulence

15:15-15:40 Tomac, Gregory:
Internal Flow Physics of a Fluidic Oscillator in
the Transition Regime

Coffee

16:05-16:30 Watanabe:
Review: Active Control of Shock-associated
Unsteady Flow Phenomena in Aeroengines -
Suppression Techniques for Transonic Cascade
Flutter and Supersonic Jet Noise

16:30-16:55 An, Grimaud, Williams:
Feedforward Control of Lift Hysteresis during
Periodic and Random Pitching Maneuvers

16:55-17:20 Greenblatt, Müller-Vahl, Lautman, Ben-Harav,
Eshel:
DBD Plasma-Based Flow Control on a Vertical
Axis Wind Turbine

17:20-17:45 Wild:
Experimental and Numerical Investigations of
Mach-, Reynolds- and Sweep Effects on Active
Flow Separation Control Efficiency

17:45-18:10 Graff, Lin, Wygnanski:
Can Active Flow Control Provide a Paradigm
Shift Airplane Design? A Commentary on a Full-
Scale Vertical Tail Model Test at NFAC

September 11, 2014 (Thursday)

08:30-9:10 Plenary 2
Gutmark:
Pressure Gain Combustion: from PDEs to RDEs

09:10-09:35 Ombrello, Tam, Haw, Carter:
Transient Mixing Enhancement of a
Transverse Jet in Supersonic Cross Flow Using
Pulse Detonation

09:35-10:00 Gray, Krueger, Moeck, Paschereit:
Experimental and Numerical Investigations of
a Pseudo-Orifice

10:00-10:25 Bellenoue:
Advanced Propulsion Studies à PPRIME: an
Overview of CVC and RDE

Coffee

10:50-11:15 Bobusch, Berndt, Paschereit, Klein:
Investigation of Fluidic Devices for Mixing
enhancement in the SEC-Process

11:15-11:40 Cai, Pitsch:
Tailoring Fuels for a Shockless Explosion
Combustor

11:40-12:05 Liberman:
Unsteady Combustion Processes Controlled by
Detailed Chemical Kinetics

12:05-12:30 Bengoechea, Reiß, Stein, Sesterhenn:
Numerical Investigation of Reactive and Non-
reactive Richtmyer-Meshkov Instabilities

Lunch

14:00-14:25 Frolov:
Principles of Pulse and Continuous Detonation
Control

14:25-14:50 Oevermann, Schrödinger, Paschereit:
Investigation of Equivalence Ratio Fluctuations
on the Dynamics of Turbulent Lean Premixed
Methane/Air Flames with a Linear-Eddy Model

14:50-15:15 Wolff, King:
Model-Based Detection of Misfirings in an
Annular Burner Mockup

Coffee

15:40-16:05 Cattafesta:
On the Control of a Canonical Separated Flow

16:05-16:30 Radespiel, Burnazzi:
Fundamentals in Coanda Flap Design

16:30-16:55 Chen, Rowley:
Heuristics for Effective Actuator and Sensor
Placement in Feedback Flow Control

16:55-17:20 Chughtai, Werner:
An Interconnected Systems Approach to Flow
Transition Control

Conference Dinner

September 12, 2014 (Friday)

09:00-09:40 Plenary 3
Bonnet, Delville, Noack:
Mechanisms of Turbulence Control

09:40-10:05 Benner, Heiland:
LQG-Balanced Truncation Low-Order
Controller for Stabilization of Laminar Flows

10:05-10:30 Borggaard, Gugercin:
Model Reduction for DAEs with an Application
to Flow Control

10:30-10:55 Lemke, Miedlar, Reiss, Mehrmann, Sesterhenn:
Model Reduction of Reactive Processes

Coffee

11:20-11:45 Haucke, Peltzer, Nitsche:
Experimental Investigation of a 7 by 7 Nozzle
Jet Array for Dynamic Impingement Cooling

11:45-12:10 Wilke, Sesterhenn:
Direct Numerical Simulation of a Round
Subsonic Impinging Jet

12:10-12:35 Schliwka, Malzacher, Chemnitz, Peitsch:
Generating an Unsteady Pressure Fluctuation
Across a Turbine Sealing Cavity in the Hot-
Acoustic-Testrig