



Monday, 28 March 2011 (TUM, Garching near Munich, Germany)

NONLINEAR THERMO-ACOUSTICS

- 1. Introduction to nonlinear thermo-acoustics** - *M. Heckl, Keele Univ.*
When does acoustics become nonlinear?
Elementary nonlinear processes in thermo acoustics
Higher harmonics in spectra – are they due to nonlinear effects or higher modes that are unstable?
Exercise
- 2. Nonlinear identification of heat source dynamics** -
W. Polifke, Tech. Univ. Munich
Nonlinear filters NFIR or NIIR
Neural networks
Proper orthogonal decomposition
- 3. A frequency-domain model of thermo acoustic limit cycles with modal coupling** - *W. Polifke, Tech. Univ. Munich*
Nonlinear system model
- 4. Using Flame Describing Functions to analyze nonlinear features of combustion instabilities** - *N. Noiray, Alstom*
- 5. Influence of nonlinear flame response on modal dynamics in annular combustion chambers** - *N. Noiray, Alstom*
- 6. Analytical tools to model nonlinear behaviour** - *M. Heckl, Keele Univ.*
G-equation
Nonlinear dynamics (lin./nonlinear stability, bifurcation, hysteresis, ...)
Green's function methods in the time domain

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ACTIVE INSTABILITY CONTROL

- 1. Introduction to AIC** - *J. Hermann, IfTA GmbH*
Open and close loop control
Interference point (Loudspeaker, Valve)
- 2. Modeling of combustion instabilities for active control** -
O. Paschereit, Tech. Univ. Berlin
Control strategies
- 3. Active control applications** - *O. Paschereit, Tech. Univ. Berlin*
Single burner, open and closed loop
Multi burner
Impedance tuning
- 4. Gas turbine application** - *J. Hermann, IfTA GmbH*
Sensor and valve implementation
Controller set-up
Results
- 5. Viewing of the Limousine test rig at IfTA** - *J. Hermann, IfTA GmbH*
Demonstration of active instability control

Wednesday, 30 March 2011

GUIDED TOURS

- 1. Siemens NGF at power plant Irsching 4 and EON Visitor Centre**
- 2. Production units at MTU Aero Engines GmbH, Munich**

Updated info will be posted @ www.ifta.com/ntaaic

Organised by IfTA GmbH in the framework of, and sponsored by
the FP7 project LIMOUSINE, a Marie Curie initiative





N'taaic 3 day Workshop on
Nonlinear Thermo Acoustics
and Active Instability Control
First Announcement



REGISTRATION

A fee applies to non-Limousine, non-TUM participants (excl. VAT):

(PhD) Students: € 360,-
Other: € 540,-

Registration includes:

Workshop Days 1 and 2: lectures, lecture notes, refreshments, lunches
Workshop Day 3: guided tours, refreshments, lunches, evening
program incl. dinner (<http://www.nockherberg.com/starkbierfest.html>)

Please note that the number of participants for the guided tours is limited due to preset group size.

Registration form and instructions are available at:
www.ifta.com/ntaaic

Updated information will be sent by e-mail when available. If you require further assistance, please send an e-mail to ntaaic@ifta.com or workshop@ifta.com, including your interest and affiliation.

ACCOMODATION

A group of rooms have been blocked for participants from 28 to 31 March in Hotel König Ludwig II (http://www.hkl.de/index_e.html).

Rates (including breakfast and VAT):

- Single room: 89.00 €
- Double room, single use: 89.00 €
- Double room, double use: 109.00 €

The rooms and rates are only guaranteed for reservations confirmed before March, 13.

Reservations: e-mail to hotel@hkl.de, indicating the ref. LIMOUSINE.
For reservations and other questions you can also contact Ms. Andrea Glatzel (Hotel König Ludwig II), Phone +49 (0) 89 329 310

VENUE

The workshops will be held at the campus of the Technical University of Munich, Boltzmannstraße 15 in D-85748 Garching.

Faculty of Mechanical Engineering (Maschinenwesen)
Thermodynamics Research Group
Room MW 1701 on the first floor (2nd floor American numbering)

TRAVELING TO THE UNIVERSITY CAMPUS

From Munich International Airport Franz Josef Strauss:

Please take suburban train S8 in the direction of Munich Central Station (Hauptbahnhof) till Ismaning (3rd stop) - then bus 230 until stop MI-Building on the Garching Campus or suburban train S1 till Neufahrn, then bus 690 to Garching Forschungszentrum (Boltzmannstrasse)

CONTACT

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