FLOW INSTABILITIES & DYNAMICS
TECHNISCHE UNIVERSITÄT BERLIN

www.flow.tu-berlin.de

experimental

low-order modeling

data-driven

turbulence

interdisciplinary

data assimilation

analytic

flow control

adjoint methods

combustion

stability analysis

numerical

coherent structures

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Our Philosophy

From high-fidelity data ...

Experiments

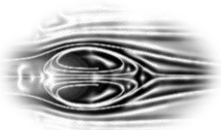
Simulations

we derive physics-based models

Coherent structures

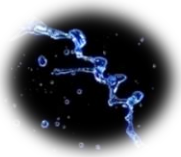
Turbulence

Flames



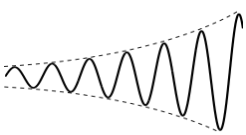
Bifurcation

Acoustics

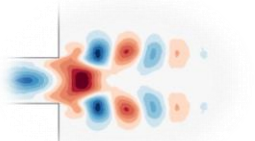


Interfaces

to analyse & control



Stability analysis



Modal decomposition

Data assimilation

Flow control

... real-world applications.

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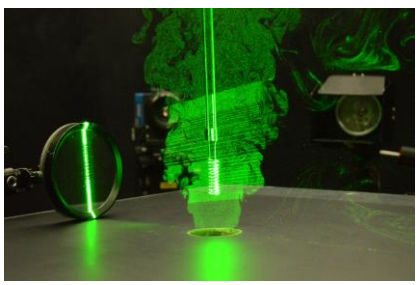
Our Expertise

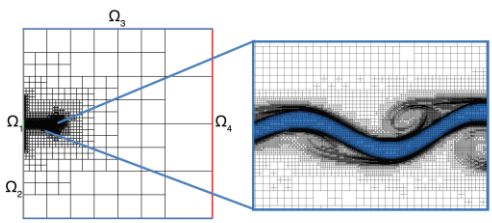
Experimental Methods

- High-speed Imagin, PIV, BOS, Schlieren
- Acoustic measurements
- Chemiluminescence
- ...



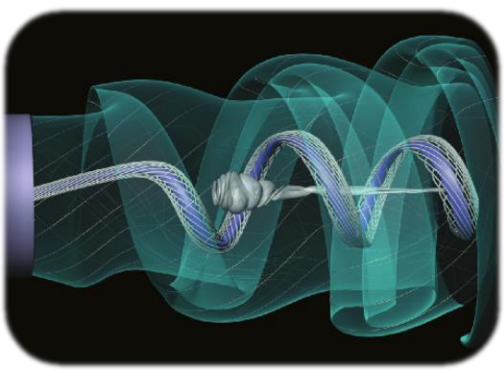
Numerical Methods

- DNS, LES, RANS
- Multiphase flows
- Compressible flows
- Reacting Flows



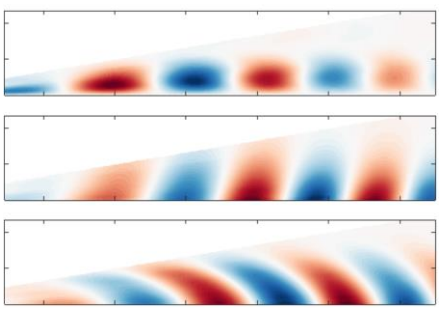
Data-driven Modelling

- Low-order modelling
- Stochastic modelling
- Coherent structures
- SPOD, FMD, DMD, ...



Analytic Modelling

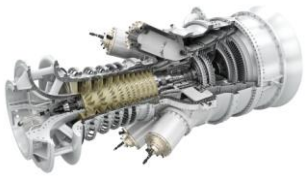
- Linear stability analysis
- Resolvent analysis
- Coherent structures
- Compressible, multiphase, reacting flows



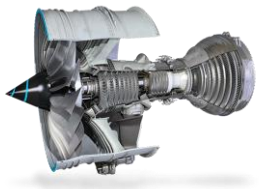
Our Partners and Funding

Industry Partners

FDX
(Fluidic Actuators)



MAN SE
(Gas Turbines)



Rolls-Royce
(Jet Engines)

Funding

DFG

SFB 1029

Bundesministerium
für Wirtschaft
und Energie

DAAD

Australian Government
Australian Research Council

AGTURBO

FVV
Forschungsvereinigung
Verbrennungskraftmaschinen

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