



# Pressure Gain Combustion Short Course

6-8 July, 2022

Berlin, Germany

## Preliminary Agenda (subject to change)

July 6th	9:00-12:30	Introductory Principles of PGC and RDC	Bohon
		<ul style="list-style-type: none"> <li>• Introduction to PGC</li> <li>• Principles of RDC</li> <li>• Detonation theory</li> <li>• Observations on experiments RDC performance/current topics</li> </ul>	
July 6th	13:30-17:00	Experimental demonstration with RDC and PDE	Bach/Bohon
		<ul style="list-style-type: none"> <li>• Show probe diagnostics</li> <li>• Operation of RDC</li> <li>• Demonstration in lab</li> <li>• Gather experimental dataset</li> </ul>	
July 7th	9:00-12:30	Processing of RDC experimental data	Bohon/Bach
		<ul style="list-style-type: none"> <li>• Filtering</li> <li>• Pressure traces</li> <li>• Determination of wave speed</li> <li>• Demonstration of CTAP/ITP/Recessed Cavity/Flush</li> <li>• Demonstration of Piezoelectric vs. Piezoresistive sensors</li> </ul>	
	13:30-17:00	Constant volume combustors	Bellenoue/Boust
		<ul style="list-style-type: none"> <li>• Principles and theory</li> <li>• Thermodynamic analysis of CVC in comparison to CPC</li> <li>• Possible analysis of experimental data</li> <li>• Unsteady heat transfer to the wall</li> </ul>	
	18:00	Group Dinner	
July 8th	9:00-12:30	Integration with turbines	Salvadori
		<ul style="list-style-type: none"> <li>• Historical perspective on combustor/turbine interaction</li> <li>• Overview of specific problems with PGC/turbine interaction</li> <li>• Overview of the problems connected with combustor and turbine cooling</li> <li>• Numerical methodologies for unsteady component interaction analysis</li> </ul>	
July 8th	13:30-17:00	Numerical modelling in RDC	Gaillard
		<ul style="list-style-type: none"> <li>• Extension of thermodynamic cycle analysis to include detonation ZND theory</li> <li>• Models of growing complexity - 0D, 1D, 2D, 3D with realistic injection</li> </ul>	

## Registration

Please register your attendance at the workshop by emailing [m.bohon@tu-berlin](mailto:m.bohon@tu-berlin). You will then receive an invoice with bank transfer details. Note: Myles will be out of office until 08.06.22, so you'll receive your invoice after this date.

Registration will cost 110€ to cover the costs of:

- Lunch each day
- Coffee breaks each day
- Dinner on the Thursday evening

## Location

The training will be held on the campus of the Technische Universität Berlin. The university is centrally located with easy access to transportation and cultural hubs. It can be conveniently reached with public transport from the Tiergarten, Zoologischer Garten, or Ernst-Reuter-Platz stations. For Berlin public transport route planning and information, please visit the [BVG website](#). You can view the [surrounding area here](#).

Tip: This summer, throughout Germany, you can travel throughout Germany on local/regional trains for the [entire month for only 9€](#). This includes all public transportation within Berlin (U-Bahn, S-Bahn, Metro, Bus, Regional Trains), but excludes the ICE high speed trains. You can purchase the ticket through the BVG or DB apps or in customer service centers.

## Recommended Hotels

- MotelOne Ku'damm ([website](#))
- MotelOne Upper West ([website](#))

You can contact the above hotels directly to request TU Berlin reduced rates

## Notes for the training

- The experimental demonstration will occur in the laboratories at the Chair of Experimental Fluid Mechanics. This is a fully functioning, and often quite busy laboratory. As such, for your own safety, you should wear appropriate clothing and shoes during your visit on the 6<sup>th</sup>. This means:
  - Closed-toed shoes. No sandals!
  - Avoid overly loose clothing that might hang up on test stands or other apparatus.
- Portions of this training will work with post-processing and analysis of data. To help with this, it is helpful if each ESR were to bring their laptop, preferably with Matlab already installed. If you don't have a laptop, please let Myles know and we'll find a solution.