In the joint projects coordinated with the BMWK, the further development of turbomachinery has been and is being focussed more strongly on the growing proportion of renewable energy sources in numerous work packages in order to contribute to a secure, sustainable and affordable energy supply in Germany through the provision of flexible reserves and energy storage.

The close cooperation between partners from research and industry ensures the optimum utilisation of technical and financial resources, generates synergies between technologies for stationary turbomachinery and engines and avoids duplicate developments.

By promoting young scientists in various fields of engineering, AG Turbo helps to ensure that Germany will continue to occupy a leading position in international competition in the field of turbomachinery.

On 8 and 9 April 2024, participating researchers from industry, research institutes and universities will report on the progress of their work from the projects of the AG Turbo and present research perspectives for the future. The event will be accompanied by keynote speeches and a panel discussion with high-calibre representatives from research, industry and politics. We would like to cordially invite you to this lecture event at the Ameron Köln Hotel Regent on Melatengürtel.

# Please register under the following link:

www.dlr.expert/ag-turbo2024

## Further information:

#### German Aerospace Centre (DLR e.V.)

Scientific Coordination Centre AG Turbo Melanie Juraschek Linder Höhe 51147 Cologne Telefon: 02203 601-1386 E-Mail: melanie.juraschek@dlr.de

Ameron Köln Hotel Regent Melatengürtel 15 50933 Köln

We have set up a room contingent until 09 March 2024 under the keyword "AG Turbo" a room contingent has been set up.





AGTURBO

18. Status seminar

on 08 and 09 April 2024 at

the Ameron Cologne

**Turbomachines** 

for a successful

energy transition

**Hotel Regent** 



### The AG TURBO

For over 35 years, AG Turbo has been the German platform for innovative turbomachinery research. It brings together key partners from industry, universities and research centres to jointly conduct pre-competitive, application-oriented collaborative research into turbomachinery. In particular, this includes the turbomachinery that converts energy in steam, gas and combined-cycle power plants as well as those that enable the transport of gases in gas distribution networks or from conversion processes.

The AG Turbo Collaborative research is funded by the Federal Ministry of Economics and Climate Protection (BMWK) and is part of the "Flexible Energy Conversion" research network. It is unique in Europe and is recognised worldwide. It has made a continuous and decisive contribution to achieving the goals set with regard to efficiency, resource conservation and climate protection in power plant processes and has thus also significantly supported the national and international economic strength of the German turbomachinery industry.

In the future, turbomachinery will continue to make an indispensable contribution to the energy transition as core components, particularly with regard to the efficiency and flexibility of power generation and in energy storage processes in combination with renewable energies. AG Turbo is guided by the BMWK's guidelines for implementing the German government's energy concept and is making an important contribution to the energy research programme with all its joint projects.

aufgrund eines Beschlusses des Deutschen Bundestages

## Monday, 08 April 2024

10:00 am Welcome and opening Dr. Benjamin Witzel Siemens Energy Chairman of the AG Turbo

#### 10:15 am Panel discussion "Turbomachinery for a

successful energy transition focus on Power-to-X" Moderation Dr. Verena Klapdor Siemens Energy

Stefan Besser Federal Ministry of Economics and Climate Protection (BMWK)

Prof. Dr. Klaus Görner University Duisburg-Essen

Dr. Jens Hannes **RWE Power AG** 

Dr. Wiebke Lüke WEW GmbH

#### 12:30 pm Lunch

14:15 pm Meeting I: Sub-network project Compaction Heinz Knittel MTU Aero Engines

Miniaturised high-temperature 14:30 pm measurement technology Dr. Andreas Zeisberger MTU Aero Engines

- Efficient H2 compressors for 15:00 pm **Power-to-X** applications Ania Dobat MAN Energy Solutions
- **Real geometry effects in** 15:30 pm compressor operation Robin Schmidt Rolls-Royce Deutschland

16:00 pm End of session

**General Meeting** 16:30 pm

**Reception & Dinner** 18:00 pm

## Tuesday, 09. April 2024

- 09:00 am Meeting II: Sub-network project Combustion Dr. Beniamin Witzel Siemens Energy **Emission minimisation of** 09:15 am GT burners through AI and automated data analysis Moritz Reumschüssel Technical University of Berlin 09:45 am Temperature distribution and gas species emission measurements under realistic combustion conditions using TDLAS 14:30 pm Dr. André Fischer Rolls-Royce Deutschland Dr. Steven Wagner Technical University of Darmstadt 10:15 am Investigation of critical operating conditions for hydrogen flames under typical gas turbine conditions Dr. Oliver Lammel German Aerospace Centre Coffee break 10:45 am 11:15 am Meeting III: Sub-network project Cooling Dr. Jens Ortmanns Rolls-Royce Deutschland **Experimental investigation of** 11:30 am platform cooling in a curved guide vane cascade Dr. Christian Landfester RPTU Kaiserslautern
- Thermo-fluid dynamic framework for 12:00 am the probabilistic design of gas turbines Prof. Robert Krewinkel MAN Energy Solutions 12:30 pm Influence of hydrogen-containing gas mixtures on the embrittlement

tendency of different material classes Sandra Stolz Ruhr-University Bochum

13:00 pm Lunch

- Meeting IV: Sub-network project Expansion Dr. Thomas Polklas MAN Energy Solutions
- Turbomachinery innovations for 14:45 pm the energy transition: Aerodynamic-aeroelastic optimisation of turbine blade profiles in Power-to-X scenarios Dr. Virginie Chenaux German Aerospace Centre

15:15 pm Flexibility optimisation of steam turbine blades Dr. Lars Panning-von Scheidt Leibniz University Hannover

- Thermofluid dynamics in 15:45 pm Casing side chambers with steam supply and extraction in load-flexible operation of industrial steam turbines Gunter Eschmann Technical University of Dresden
- 16:15 pm **Closing words** Dr. Benjamin Witzel Siemens Energy