COPA-GT: Coupled Parallel simulation of Gas Turbines

Description

The project COPA-GT was structured to provide training of a multi-disciplinary and intersectorial nature for young Fellows in Europe in the field of propulsion and electric power generation systems.

The young researchers obtained expertise in gas turbine engine (GT) design, based on fluid and structural mechanics, combustion, acoustics and heat transfer. They became familiar with tools to design and operate innovative GT engines, taking into account the whole diversity of physics involved, in a consistent and integrated way, to improve the system performances and reliability, adapt them to future sustainable fuels and operation conditions, and lower their environmental impact. This implies a strong expertise in High Performance Computing (HPC) and physics, for the use of the most advanced numerical simulation tools, that are run on the most powerful computers.

What is new and original in this project, is that the Fellows were trained on the integrated engine design, taking into account component performance and interaction. Untill the time of the project all training and design was focused on individual components, postponing component interaction till commissioning of the engine, which has led to severe delays and difficulties in changing operating conditions in the past. With the advanced hard and software tools available at the partners institutions the young researchers were able to develop an integrated engine performance prediction.

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