

PROJECT

AMICAL

Advanced Modeling Capabilities For UHBR Low Noise Fan Technology

Funding: European (Horizon 2020)

Duration: Jul 2020 - Dec 2023

Status: Ongoing

Total project cost: €2,098,750

EU contribution: €1,469,124



Call for proposal: H2020-CS2-CFP10-2019-01

[CORDIS RCN : 229565](#)

Objectives:

The design of innovative low fan noise technologies for next generation UHBR engines is highly conditioned by the accuracy of aeroacoustic modelisations and related design tools. To further guide UHBR Low fan noise design and noise reduction technologies, the AMICAL project is focused on applying advanced high-fidelity numerical tools, based on Lattice Boltzmann and high order Navier-Stokes methods, to realistic fan/OGV configurations, including installation effects and wind tunnel environments. In addition several noise reduction mechanisms will also be simulated with high-fidelity methods.

As a by-product , the high-fidelity simulations will be exploited to validate and improve lower fidelity noise prediction methods, in support of the engineering needs for fast and reliable design tools.

In order to exploit combined acoustic numerical and experimental databases, new post-processing methodologies will also be developed to identify 2030+UHBR fan noise sources and improve the physical understanding of noise generation mechanisms.

The AMICAL consortium is formed by NUMECA, a Belgian SME active in flow simulations (also coordinating the project), a Dutch expert in noise identification and post-processing (PSA3) and CERFACS a major French research center. All three partners have an extensive experience in EU and Cleansky projects.

Parent Programmes:

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Lead Organisation:

Numerical Mechanics Applications International Sa

Address:

CHAUSSEE DE LA HULPE 187-189
1170 BRUXELLES
Belgium

Organisation Website:

<http://www.numeca.com>

EU Contribution: €640,937

Partner Organisations:

Pieter Sijtsma Advanced Aeroacoustics Bv

Address:

PRINSES MARGRIETLAAN 13
8091 AV WEZEP
Netherlands

EU Contribution: €127,750

Centre Europeen De Recherche Et De Formation Avancee En Calcul Scientifique

Address:

Avenue Gaspard Coriolis 42
31057 Toulouse
France

Organisation Website:

<http://www.cerfacs.fr>

EU Contribution: €700,437

Technologies:

Computer-aided design and engineering
Reduced fan noise

Development phase: Research/Invention

STRIA Roadmaps: Vehicle design and manufacturing

Transport mode: Air transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Environmental/Emissions aspects

Geo-spatial type: Other