

Preliminary program of the 10th International Conference on
Recent Advances in Aerospace Actuation Systems and Components
May 21-23, 2025, Hotel Mercure Compans-Cafarelli, Toulouse, France

This is the preliminary program. PLS note that:

- this program may be subjected to little changes according to organizational constraints*
- the sessions are arranged by needs or engineering activities as far as possible, rather than technological solutions.*

Wednesday 21 May, 2025

8.00 – 9.00 am, Registration

9.00 - 9.05 am, Welcome address - Conference opening

9.05 - 10.35 am, Session 1 - Conceptual design

Key Considerations for Future Distributed Flap Drive Systems based on Comparisons with an Electric Cargo Door Actuation System

BRADY M., FLEDDERMANN A., HASERODT J., Airbus Operations GmbH, *Germany*

An Actuation System Utilizing Preemptive Scheduling Technology for Unmanned Aircraft

LANDBERG M., BRAUN R., SETHSON M., KRUS P., Division of Fluid and Mechatronic Systems, Linköping University, *Sweden*

~~**Interdisciplinary Human-in-the-loop Simulation Framework for Evaluation of Actuation System Concepts**~~

~~DELL'AMICO A., VILLANI E., DE NEGRI V., KRUS P., Linköping University/Saab AB/Federal University of Santa Catarina, *Sweden/Brazil* - Cancelled~~

10.35 - 11.00 am, Coffee break

11.00 - 12.30 am, Session 2 - Recent applications

The Thrust Vector Actuation Systems (TVAS) of Ariane 6

LAVATELLI A., ALEXANDRE P., DE COSTER F., RONCHAIN P., VADALA G., SABCA, *Belgium*

A Novel High-Performance Active Damper for Helicopter Gearbox Vibration Control

BERTOLINO A.C., SORLI M., PORRO P.G., GALLI C., Politecnico di Torino / Elettronica Aster SpA, *Italy*

Failure Transients Characterization for the Qualification of the Fail-safe EMA used for the Airbus RACER Flap Movables

DI RITO G., KOVEL R., LUCIANO B., SALVI F., NARDESCHI M., Università di Pisa/Airbus Helicopters/AESIS/Umbragroup, *Italy/France*

12.30 am - 2.00 pm, Lunch

2.00 - 3.30 pm, Session 3 - Conceptual design

Dual EMA Actuation System for Flight Control Surface

PINEDO D., FERNANDEZ J. A., GALLEGO A., NOVILLO E., Compañía Española de Sistemas Aeronáuticos SAU, *Spain*

Advances in Mechanical Transmission Design for Flight Control EMAs

PISPOLA G., LAVATELLI A., TELTEU-NEDELCO D., Umbragroup s.p.a., SABCA, *Italy/Belgium*

Control Based Enhanced Regenerative Modes for Hydraulic MultiActuator Systems

BIDEAUX E., TARDY G., SMAOUI M., LANOIX A., Laboratoire Ampère, INSA Lyon/Volvo Compact Equipment/Cerebrum Ingénierie, *France*

3.30 - 4.00 pm, Coffee break

4.00 - 5.30 pm, Session 4 - Faults and failures

Identifying Key Predictors of Failure in Electro-Mechanical Actuator

RAUNIO V., ALENIOUS M., PARTAP SINGH V., AND MINAV T., Faculty of Engineering and Natural Science, Tampere University, *Finland*

Validation of Skew Detection Concepts for Future Leading-Edge Slats

KRALL K., THIELECKE F., Hamburg University of Technology, Institute of Aircraft Systems Engineering, *Germany*

~~**Sensorless Control Mode for Enhanced Fault Tolerance in Electromechanical Actuators for Aircraft Flight**~~

~~**Control** KOWALSKI R., German Aerospace Center (DLR), *Germany* - Cancelled~~

Thursday 22 May, 2025

8.30 – 10.30 am, Session 5 - Components

Experimental Investigation of Oscillating Bearings in EMA by Using Accelerated Lifetime Tests

SEFERLI T., DREYER N., KOWALSKI R., DLR Institute of Flight Systems / Liebherr-Aerospace Lindenberg GmbH, *Germany*

Magnetically Geared Blade Pitch Control Actuation – Test Results

DRAGAN, R. S., BARRETT R., WILSON G., KINGHORN R., POWELL D. CALVERLEY S., Magnomatics Limited, *United Kingdom*

Demonstration of Roller Screw Technology as a Cost-effective Solution for More Active Primary Flight Controls of Next Generation Aircrafts

GROLL A., MONTERY-MARD Y., LATARTE R., Schaeffler - Ewellix France, *France*

A Systematic Approach to Sealing for Low Molecular Weight Gas in Static Applications

ANDERSEN T., Trelleborg Sealing Systems, *Sweden*

10.30 - 11.00 am, Coffee break

11.00 - 12.30 am, Session 6 - Electro-hydrostatic actuators

Influence of the Spindle Flow Distribution Pair on the Performance of Micro Electro-hydrostatic Actuator
TONG C., ZANG Y., LI S., RUAN J., Zhejiang University of Technology, *China*

A Long-Life EHA in 500 m Aperture Spherical Radio Telescope

ZHANG P., NING S., ZHAO S., CHEN K., ZHAO Y., YANG Y., Beijing Institute of Precision Mechatronics and Controls, *China*

Modelling and Performance Validation of a Novel Fault Tolerant EHA for Helicopter Flight Controls

FU J., SUN M., School of Mechanical Engineering and Automation, Beihang University, *China*

12.30 am - 2.00 pm, Lunch

2.00 - 3.30 pm, Session 7 - Health monitoring

Health Monitoring Analysis and Fault Prediction of Harmonic Drives for Electro-mechanical Flight Control Actuators

BERTOLINO A.C., DE MARTIN A., GUIDA R., JACAZIO G., SORLI M., *Politecnico di Torino, Italy*

Health Monitoring System for Electromechanical Actuation System Pre-Flight Status Assessment

GOMEZ DE MARISCAL B., VILLAR A., GALLEGO A. NOVILLO A., Compañía Española de Sistema Aeronauticos SAU, *Spain*

Developing a PHM System for Legacy Actuators - the Case of the A320 Spoiler

AUTIN S., DE MARTIN A., GUIDA R., JACAZIO G., Collins/Politecnico di Torino, *Italy/France*

3.30 - 4.00 pm, Coffee break

4.00 - 5.30 pm, Session 8 - Control

Laboratory Testing of Torque Control of Electro-Mechanical Flight Surface Actuation including Friction Compensation

SCHALLERT C., German Aerospace Center (DLR), *Germany*

Sensor Fusion Controller for Fault Tolerant EMA

WANG R., VANDERWEIDE D., WALLACE R., Eaton Corporation, *United States*

A Novel Two Redundancy Electronic Controller for UAV's Landing Gear Retraction/Extension Actuation System

CAO S., QIAO S., FENG W., MENG S., LI Z., GUO Q., Beijing Institute of Precision Mechatronics and Controls, *China*

6.00 - 11.00 pm. Private visit of Toulouse Museum and conference banquet

Friday 23 May, 2025

8.30 – 10.30 am, Session 9 - Miscellaneous applications

Fuel Metering for Hydrogen Powered Aircraft

PLUMMER A., ADEYEMI D., BURDEN D., University of Bath / Moog Aircraft Group Tewkesbury, *United Kingdom*

Electrical Actuation Technology for Aircraft Valves using Thermal Effects

NOURY S., Equip'Aero, *France*

Prestressed PZT Actuators for Electromechanical Resonant De-icing

SABATHÉ, Y., BUDINGER M., POMMIER-BUDINGER V., Institut Clément Ader, INSA Toulouse/ISAE-SUPAERO Toulouse, *France*

Electromechanical Actuator with Integrated ECU for Aircraft Cooling System

VILLANUEVA A., CAMACHO D., MACIAS R., NOVILLO E., FERNANDEZ J.A., Compañía Española de Sistemas Aeronáuticos SAU, *Spain*

10.30 - 11.00 am, Coffee break

11.00 - 12.30 am, Session 10 - Modelling and simulation

Digital Twin-Driven Testing and Validation of Aircraft Actuators: Development and Application of a Virtual Test Rig

ATTOUT B., DEBIANE A., Certia, *France*

A Model-Based Design Approach for Preliminary Sizing of Electromechanical Actuators in Primary Flight Control Systems

SCROEDER L., BORGES L., GOES L.C., EMBRAER /Instituto Tecnológico Aeronautica, *Brazil*

Incremental Models of Servovalves for Customers

ACHILLE R., MARÉ J-C., Politecnico di Torino/, Institut Clément Ader, INSA Toulouse, *Italy/France*

12.30 - 12.45 am, Conference closure

Presented as a poster:

Dynamic Model of a Resonant Electromechanical De-icing System

POTHIN J., REYSSET A., BUDINGER M., POMMIER-BUDINGER V., Institut Clément Ader/ENAC ISAE-SUPAERO ONERA, *France*