

19th ESMATS 2021

European Space Mechanisms and Tribology Symposium

20.09.2021 – 24.09.2021



Venue

From 20th to 24th September 2021, the European Space Agency (ESA) as well as various sponsors and supporters, will hold the 19th European Space Mechanisms and Tribology Symposium (ESMATS) for the first time as a fully online event in order to anticipate eventual travel restrictions at that time and to allow participation from a maximum number of participants around the world.

To allow better coordination with working environment and international online participation, the usual 2.5 day event will be held on 5 afternoons each from 14:00 to 18:00 CEST.

All relevant information will be accessible via the homepage: www.esmats.eu

About the on-line tool

The online tool “LetsGetDigital” that will be used to host the conference is promising that you should experience an event remotely as though you are there in person. It will therefore include check-ins, break times, face2face meetings and also a Virtual Lobby offering the possibility to network with face2face meetings that can bring partners and Exhibitors in contact with participants.

Concerning the Symposium content itself, as a speaker, you will get a digital stage and participants will be able to interactively engage in sessions.

More info about this on-line tool can be found on <https://letsgetdigital.io>

Aims and Scope

The aims of the Symposium are to:

- Foster a dialogue between space mechanisms engineers on the design, development, testing, production and in-flight experience of spacecraft and payload mechanisms
- Encourage personal contacts and cooperation within the mechanisms and tribology community
- Provide a networking opportunity as well as a presentation platform for companies and organisations
- Encourage the transfer of technology to and from space applications
- Promote awareness that space opportunities afford sustainable industrial growth.

Preliminary Programme

The areas listed below are expected to be the major themes for the Symposium. Papers presenting hardware and covering these areas, coming from European and non-European entities, are specifically encouraged. However, papers covering other Space Mechanism related topics will be assessed on merit. All abstracts submitted will be given due consideration.

Mechanisms Design, Analysis, Manufacturing, Assembly, Integration and Testing

- Lessons learned from qualification and/or flight experiences
- Descriptions of novel and challenging/promising designs
- New methods for design, analysis, simulations and testing of mechanisms
- Design guidelines and recommendations
- Design/manufacturing/verification for high-volume production
- Design for disturbance attenuation, low shock, low noise performance
- Design for mechanisms demisability

Components/Equipment,

- Motors, actuators, sensors, transmission devices, bearings
- Hold-down/release, deployment, pointing, scanning, high-precision mechanisms
- Wheels, mechanical coolers, pumps, valves, solar array drive mechanisms, etc.
- Miniaturisation of space mechanisms,
- Pyrotechnics

Tribology and Materials

- Lubricants and lubrication for bearings, gears, joints,
- Application of smart materials in mechanisms
- Extreme temperatures, environments, operating conditions and long term storage
- New tribo-materials and/or surface modification, Electrical sliding contacts,

Launch Vehicles

Separation systems, engine/propulsion regulation, gimbaling devices, turbopumps

Science Observatories, Earth Remote Sensing, and Planetary Exploration Mechanisms

- Mechanisms for science and remote sensing instruments
- Mechanisms for exploration; manipulation, robots, rovers
- Sampling systems and in-situ analysis devices

In-orbit servicing, ISS and Re-entry Vehicle Mechanisms

- Long-term mechanism operation and maintenance in space
- Mechanisms for International Space Station (ISS), In-Space Servicing and Assembly
- Mechanisms for re-entry vehicles

Registration and Fees

The Symposium programme and information concerning the registration procedure will be issued in April 2021. Information concerning the submission of abstracts and papers is given under the “Call for Papers” below and on the website www.esmats.eu.

The registration fee (covers participation in the Symposium and online download of proceedings) is €250.- + VAT for early registration until 1st July 2021, or €350 + VAT afterwards.

Cancellation Policy

A registration can be cancelled at a minimum administration fee of 50% per participant until 1st September 2021. Cancellations after this date are not eligible for refund. Substitution of participants is permitted.

Working Language

The working language of the symposium will be English.

Call for Abstracts

Authors are invited to submit proposals for presentations or posters to the Symposium in the form of an extended abstract (up to 500 words including drawings or photos)

The abstract submission shall include

- title of the paper
- Topic covered by the paper as per the topics list provided above
- author(s) name(s) and affiliation(s), and address
- telephone, and e-mail address of the submitter of the abstract
- a clear and precise outline of the novelty of the paper and major points of interest
- an indication of presentation preference (oral or poster)
- an indication as to whether a paper on the subject has previously been published
- confirmation that the intended content can be presented and published in Europe

Deadline for Abstracts

Abstracts should be submitted **online** by 1st Feb 2021 via the following link: <https://atpi.eventsair.com/esmats2021/abstractsubmission>

Abstracts selection

Abstracts selection by the ESMATS committee will be based on the following criteria

- relevance to space mechanisms and tribology
- topic based on lessons learnt
- topic based on hardware test results
- originality/novelty of the innovation presented
- quality and clarity of abstract

Authors will be notified of the Organisation Committee's decision to select their abstract by 12th April 2021. Authors whose abstracts have been accepted can download author's guidelines for the preparation of a paper and presentation from the ESMATS homepage.

Presentation Policy

Oral or poster presentations may be accompanied by the online demonstration of novel mechanisms and products.

For each paper presented orally, 15 minutes are allocated followed by 5 minutes for discussion.

Online presentations will not be available for download.

A paper template can be downloaded from www.esmats.eu

Poster Policy

An online area will be available for poster exhibition and dedicated time-slot for discussion will be defined through the on-line tool.

Proceedings

The proceedings gathering all the selected papers will be available for download from the date the symposium will start.

Virtual Exhibition Area

An online area will be available for hardware exhibition and company related information.

For more information please contact: esaconferencebureau@atpi.com

Sponsorship

As with previous ESMATS there will be opportunities to sponsor the event. As a sponsor your company logo will appear on the esmats.eu website along with company and product / service. For more info, please go to www.esmats.eu specific sponsorship page

Space Mechanisms related Courses

Associated with the same event, there will be four courses offered, these will be scheduled in the preceding week and conference week:

- The Advanced Mechanisms Design Course (AMDC) will be provided by ESA/ESTEC experts from the mechanisms team
- Space Tribology Course (STC) will be provided by The European Space Tribology Laboratory (ESTL, UK)
- The Fundamentals of Space Vehicle Mechanisms Course will be provided by Launchspace (USA)
- The Compliant Mechanisms Design Course will be provided by CSEM (TBC)

Further information about this courses, specific time schedule and registration procedure will be provided on www.esmats.eu when they open for registration in April 2021. A minimum participation applies for these courses.

Calendar of Events

January 2021	First Announcement/Call for Papers
01. Feb 2021	Abstracts deadline
12. Apr 2021	Authors notification, Preliminary Programme & Start of Registration
07. Jun 2021	Deadline for Papers & Authors registration
21. Jun 2021	Second Announcement/ Final Programme
13.-17. Sep 2021 (AM)	Tribology Course from ESTL
13.-17. Sep 2021 (PM)	The Fundamentals of Space Vehicle Mechanisms Course from LaunchSpace
13.-17. Sep 2021 (PM)	The Advanced Mechanisms Design Course (AMDC) from ESA/ESTEC
20.-24. Sep 2021 (AM)	Compliant Mechanisms Design Course (TBC)
20.-24. Sep 2021 (PM)	Symposium and Distribution of Proceedings

Organising Committee

Name	Function, Company, Country
Lionel Gaillard	(Chairman), ESA/ESTEC, NL
Manfred Falkner	(deputy chairman) ESA/ESTEC, NL
Frank Härtel	Airbus Defence and Space, DE
Ed Boesiger	Lockheed Martin (US Coordinator)
Jean-Luc Bozet	Université de Liège, BE
Carlos Compostizo	SENER, ES
Henk Cruijssen	Airbus Defence and Space, NL
Frederic Courtade	CNES, FR
Xavier Francois	Thales Alenia Space, FR
Gilles Feusier	EPFL, CH
Oliver Kunz	RUAG Space, CH
Simon Lewis	ESTL-ESR Technology, UK
Johan Mürer	Kongsberg, NO
Enrico Suetta	Leonardo, IT
Marta Tokarz	Astronika SpA z.o.o., PL

General information about ESMATS and its organisation is available on

www.esmats.eu

and via

esaconferencebureau@atpi.com