

EASN News

Brussels Parliamentary Breakfast and Open EASN Workshop

Parliamentary Breakfast and Open EASN Workshop details including dates and times for European Parliament and EASN events.

On February 16th 2016, EASN will be holding in Brussels a dual event, dedicated on Aeronomics Academia. A Parliamentary Breakfast, hosted by MEP Dieter-Lebrecht KOCH, co-chair of the Committee of Transport and Tourism, and an Open EASN Workshop. The Parliamentary Breakfast on "Taking off to the future of European Aviation: is academia still on board?" will address topics such as: Academic research for seamless and affordable air access to Europe; Intermodality as innovation driver; and How to achieve an integrated European aviation education system.

The Parliamentary breakfast will be followed by the Open EASN Workshop on "Aeronautical academic research in the light of the new realities of the 21st century: are we actually performing the research we need?". This EASN Open Workshop will serve as a platform for representatives of the European Academia, Industry, Research Centers and the EC to present their viewpoints. It will foster an open discussion, aiming at reaching some common measures for maintaining innovation on the European aviation development chain.

EASN Members are invited to attend both events but due to the limited seats available in both events, pre-registration and confirmation is required. interested parties can find out more and register here.

Interview of Mr. Piet-Christof Woelcken, Project Coordinator of the SARISTU project

Interview with Mr. Piet-Christof Woelcken (Airbus Operations GmbH), Project Coordinator of the SARISTU project, sharing his experience on managing the most successful Level-2 project in Aviation funded under FP7.

Read the full interview on the EASN website.

5th EASN Association International Workshop on Aerostructures

International Workshop on Aerostructures Science Network successfully carried out the 5th, out of a series of annual specialized Workshops, in the field of Aerostructures. The workshop was hosted by the University of Manchester, on 2-4 September 2015.

The European Aeronautics Science Network has successfully carried out the 5th, out of a series of annual specialized Workshops, in the field of Aerostructures. The workshop was hosted by the University of Manchester, on 2-4 September 2015. The EASN International Workshops, every year, aim to share high quality, current achievements and new upstream ideas for future research and in the same time to offer their participants a forum to meet and present among relative audience, their latest advancements.

In this frame, the event proved to be a unique opportunity for the participants to obtain an overview of the recent advancements in the research scene, with presentations from 21 ongoing research projects and support actions which were performed in three parallel sessions. In addition, 30 scientific papers have been published in the Workshop proceedings, some of which will be published following peer review in two scientific journals, namely the "International Journal of Structural Integrity" (IJSI) of Emerald Group Publishing and "Advances in Aircraft and Spacecraft Science" (AAS) of Techno-Press.

Furthermore, distinguished speakers updated the delegates about the future industrial trends and European priorities with respect to the medium and long-term goals, as set by the aviation stakeholders and participants had the opportunity to engage in fruitful discussions and networking with more than 100 representatives of the Academia, research community and industry.

Finally and responding to the increasing interest from the European Aeronautics Community for a scientific event which offers a forum for discussion and exchange of information about state-of-the-art research and development activities in Aeronautics and Air Transport, EASN has announced its 6th annual International Conference on Innovation in European Aeronautics Research which will be held on October 18 - 21, 2016 at the INEGI premises, Porto, Portugal. More information on the outcome of the workshop, including the performed presentations, is available here.

Interview of Professor Joachim Szodruch, Chairman of the Board of Hamburg Aviation

Interview with Professor Joachim Szodruch, Chairman of the Board of Hamburg Aviation, evaluating the efforts made in the frame of FP7 to reach the targets set by the vision 2020, comment on the realization of Horizon 2020 in aeronautics-related upstream research, discusses the role of Academia in the new context, and many more.

Read the full interview on the EASN website.

New EASN representatives in ACARE

Having completed a term of more than 3 years and in view of the SRIA update which officially kicked off a few days ago, EASN has renewed its nominated representatives in the ACARE Working Groups. The EASN representatives closely follow the activity of the groups, contribute with their viewpoint and inform the EASN community about any topics of interest to the European Academia.

The new EASN representatives in ACARE can be found on the EASN website.

EASN at Aeroday's 2015

The EASN Association was present at the 7th European Aerodynamics Days, held on 20-23 October 2015 at the QEI Centre in Central London, UK. This unique conference, attended by more than 1000 delegates, 280 key speakers and 90 exhibitors, has acted as a positive enabler for industry, governments, the European Commission, research institutions, academia and many others, to come together, interact and present strategic perspectives and achievements in aviation research and innovation.

The EASN Association was represented through several "channels" during AERODAYS 2015:

- EASN hosted its own dedicated booth, where members of the BoD were present and available for short B2B meetings. Moreover, posters and leaflets were available for distribution at the booth presenting to the public information related to EASN involved projects.

- EASN took part in the parallel session 1H on the first day of the event with the presentation of Prof Zdobyslaw Goraj on "European Aeronautics Universities - Hatchery of New Knowledge and Breakthrough Technologies". The presentation is available for viewing and downloading here.

It is worth noting that significant interest about EASN activities was shown by the visitors highlighting once more the importance of EASN primary goals, namely, to structure, support and upgrade the research activities of the European Aeronautics Universities, as well as facilitate them to respond to their key role within the European Aeronautical research Community in incubating new knowledge and breakthrough technologies.

6th EASN International Conference on Innovation in European Aeronautics Research, October 18 - 21, 2016, Porto, Portugal

In 2016, for the first time, the European Aeronautics Science Network will convene in Portugal. The 6th International Conference of EASN will be co-organized with the Institute of Science and Innovation in Mechanical and Industrial Engineering (INESC) of the University of Porto (FEUP). The 6th EASN International Conference is set to be the largest, broader and most comprehensive gathering of the association. It will include Plenary Sessions by renowned speakers and Open Discussions with distinguished researchers from the industry and academia. Thematic Sessions holding the 90% of current European aeronautics research programs and Technical Workshops. The annual EASN Conference provides an opportunity for participants to share their recent activities and point of view regarding specific research fields in Aeronautics and Air Transport and is the ideal place to meet and exchange ideas with eminent researchers from the industry and academia.

During the three days of the Conference, the General Assembly of the EASN association will be held. The General Assembly will discuss the achievements of the current Board of Directors and will set the frame and provide guidelines for the future activities of the association. At the end of the General Assembly, all effective members will be called to cast their vote and elect the new BoD that will lead the association for the next 3 years. All EASN members are invited to join the General Assembly.

More information about the Conference will be posted on a regular basis on the EASN website as well as on the 6th EASN International Conference website.



EASN endorsed EU-funded projects: Latest news and achievements

IASS

The IASS project, aiming at developing a new generation of composites able to overcome some of the current limitations of aeronautics materials, was completed in August 2015. The traditional approach to the development of structural aeronautics materials is to address the load-carrying and other functional requirements separately, resulting in suboptimal load-bearing materials with the penalty of added weight. The IASS project achieved in developing self-healing, load-bearing materials and structures with all functionalities integrated in a single material able to meet many important requirements of structural materials for primary structures in aeronautics.

The main concept underlying the project was the use of the nanotechnology strategy for the production of new, high performance structural multifunctional materials. Using all the results of the IASS consortium, promising multifunctional resins able to increase flame resistance, electrical conductivity and regenerative ability have been developed. Multifunctional carbon fiber reinforced panels (CFRP) have been manufactured using the multifunctional resin. CFRPs have been manufactured by Resin Film Infusion using a non-usual technique to infuse a nano-filled resin into the carbon fiber dry preform. Several flat panels have been produced and tested with respect to all the targeted functionalities. The electrical conductivity was found to be about 2x10^4 Sm in the direction parallel to the fibers, whereas a value between 3.0 and 4.0 S/m was found in the directional orthogonal to the fibers. These values are among the highest values reached until now for nonfilled resins impregnating carbon fibers. The panels also demonstrated enhanced flame resistance properties. Furthermore, due to the autogenic ability, a significant decrease in the fatigue crack growth rate by approximately 80 % was achieved.

For more information visit the IASS project website.

Work Strategy

Work Strategy diagram showing a process flow from 'Improved electrical conductivity' to 'Improved impact damage resistance'.

QUICOM

QUICOM linked the activities of 12 partners from 6 European countries in order to establish a strong team with expertise in X-ray techniques, software, application, and CFRP materials to collaborate on reliable, fully 3D inspections of aeronautics components. The progress beyond the state of the art focused on the extensive use of X-ray computed tomography (XCT) techniques to detect defects in small high volume, hybrid and large composite structures. Advanced X-ray methods in different modalities were developed and applied for NDT of composite components. The developed QUICOM technology platform assures thorough inspections of the structure at high levels of detail, and hence allows for reducing the design, production and rework costs due to an enhanced understanding of the real inner 3D structures. The availability of such an inspection enables higher structural efficiency and higher performance than recent state-of-the-art with the same or higher level of safety. Understanding of the damage in a composite structure is key factors for the application of a damage tolerance approach. The computer models, developed and optimized within QUICOM, allow generating a detailed understanding on the effect of production flaws, on the deviation in yarn geometry or shape, as well as on the mechanical properties of the composite parts. Therefore, a potential increase in the amount of rework and a decrease of production costs is expected, assuring damage tolerance. The QUICOM project was running from 10/2012 to 09/2015 in a total project lifetime of 36 months.

For more information, please visit our website at QUICOM project website.

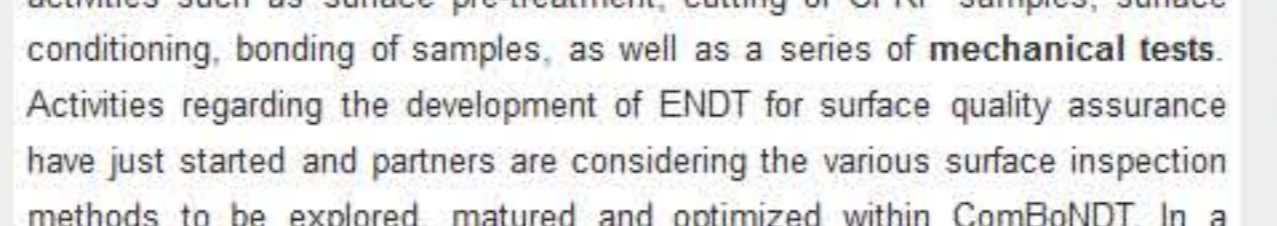


ComBNDT

Real-life challenges provided by the industrial partners confirm the significance of the ComBNDT research and the necessity of introducing quality assurance concepts for adhesive bonding. These challenges cover both areas of Manufacturing and Repair and are examined as test-cases. The various materials, processes and parameters related to these applications (e.g. CFRP materials, types of adhesives used, surface preparations, etc.) are thoroughly examined and a list of specifications are developed towards the development of test coupons. The first samples were already produced and, following a series of preparation processes, these are now distributed to the respective partners for conducting their experiments. Sample preparation include activities such as surface pre-treatment, cutting of CFRP samples, surface conditioning, bonding of samples, as well as a series of mechanical tests.

Activities regarding the development of ENDOT for surface quality assurance have just started and partners are considering the various surface inspection methods to be explored, matured and optimized within ComBNDT. In a similar way, partners examine the processes to be used for the quality assurance of adhesive bonding. Activities on the validation of ENDOT techniques and technology assessment currently cover the examination of Technology Readiness Levels (TRL 3 and 4) and while TRLs 5 and 6 will be examined later in the project.

For more information visit the ComBNDT project website.



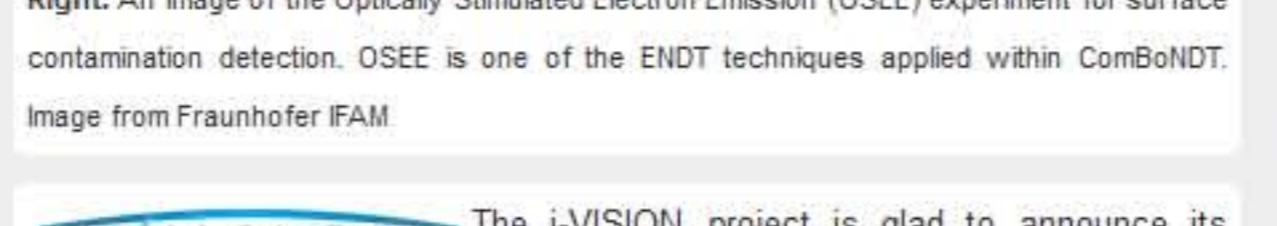
Left: Example of contamination on surface that can be detected applying ENDOT techniques. Image from Fraunhofer FFM. Right: An image of the Optically Stimulated Electron Emission (OSSE) experiment for surface contamination detection. OSSE is one of the ENDOT techniques applied within ComBNDT. Image from Fraunhofer FFM.

i-VISION

The i-VISION project is glad to announce its strong participation in the 7th European Aeronautics Days that was held on 20-23 October 2015 at the QEI Centre in London, UK. i-VISION was present at this event by hosting a dedicated booth where project related posters were displayed and leaflets were available for distribution. In addition, a demo application of a virtual reality cockpit created within the project was exhibited enabling the participants to actually "explore" the "i-VISION experience". This demo contains a first version of the Semantic Engine, the semantic scene graph interface and mappings and workflows as Linked Programmes and it is expected to be used as a reusable and low-cost simulation test-bed for experimenting with various configurations and set-ups of virtual cockpits so as to allow the human-centred assessment of future cockpit architectures.

Finally, a brief i-VISION presentation of the project's progress and outcomes was made by the project Coordinator, Dr. L. Rentzos, and also i-VISION information was hosted at the EASN booth as well. It is worth noting that significant interest about i-VISION activities was shown by the visitors highlighting once more the impact and contribution of the project to the aeronautics community. In the same time and as i-VISION is about to complete its second year, all partners are working at full speed towards the successful finalisation of the project's activities.

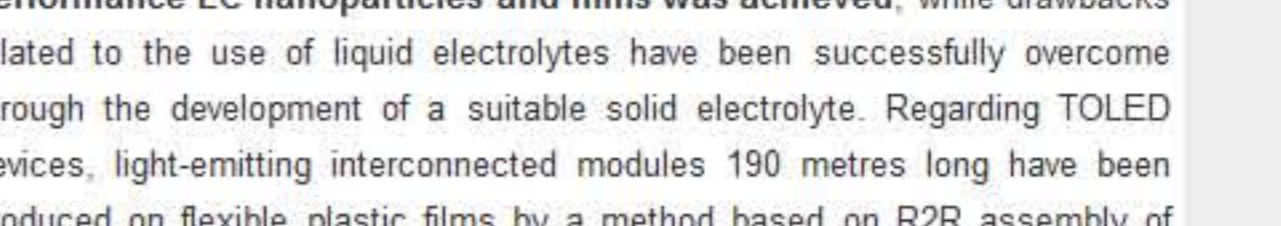
For more information please visit the i-VISION website.



InLight

During its three years of development, the In-LIGHT project has realized a large step towards creating a smart aircraft window, contributing in this way to the passenger comfort, optimized use of daylight, and significant savings in both lighting and cooling load energy. With regard to electrochromic devices based on nanostructured coatings, existing limitations requiring high-temperature processes were resolved and the development of novel, optimized processes compatible with plastic substrates for high performance EC nanoparticles and films was achieved, while drawbacks related to the use of liquid electrolytes have been successfully overcome through the development of a suitable solid electrolyte. Regarding TOLED devices, light-emitting interconnected modules 190 metres long have been produced on flexible plastic films by a method based on R2R assembly of gravure-printed layers in ambient atmosphere. Highly transparent AZO layers with low resistance were successfully delivered, beyond currently commercially available ITO-coated plastic substrates. In the end, both EC and TOLED devices were successfully scaled-up to the dimensions of a real-life aircraft window and tandem devices combining both technologies were developed. The achievements of the In-LIGHT project validate the concept of smart windows with added functionalities (e.g. smart displays) on passenger aircrafts.

For more information please visit the In-Light project website.



CORSAIR

The CORSAIR New Industrial Portable Cold Spray Unit was successfully developed and repairs are now being realized on various aircraft components that will be tested at the AI offices of interest for the industrial partners. The results will be compared with the repairs obtained by traditional fixed Cold Spray units for assessing opportunities and limits of this new plant for the in-situ repairs. A new Cold Spray nozzle design approach has been developed, which takes into account the proper gas expansion through the divergent part of the nozzle, as well as the maximum acceleration achieved by the particles. Short length (53 mm) and low gas consumption nozzles were designed for specific aeronautical applications. In particular, short nozzles were designed for mobile unit applications, allowing longer spraying operation times and reduced operation costs. The prediction of interfacial crack growth of cold sprayed coatings is an important part of lifetime assessment of the coatings. Currently, there are no such models available for cold sprayed coatings and hence, delamination of coating is described by cohesive law implemented in Finite Element (FE) software. Two cohesive material parameters (strength and energy) are required in both normal and tangential direction to the interface, in order to create the FE damage model. The specimens needed to get the value of the damage parameters are currently in the stage of manufacturing.

For more information, please visit our website, image gallery and video gallery.



Above: The CORSAIR New Industrial Portable Cold Spray Unit. Below: Repaired demounted aircraft part. Depth of corrosion up to 1.5 mm (material loss).

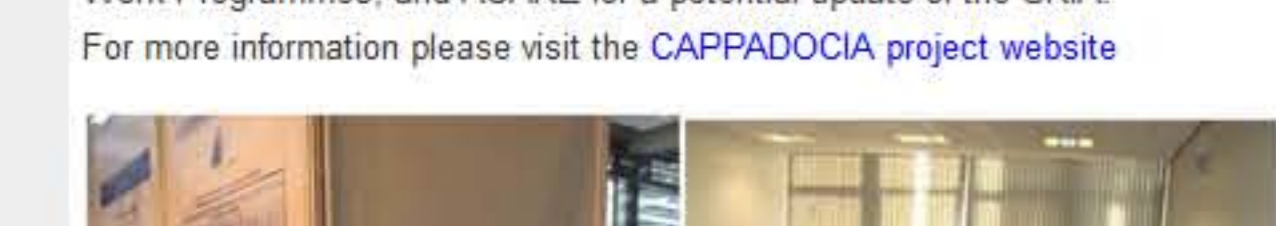
Coordination and Support Actions: Latest news

CAPPADOCIA

Having completed two full years of operation, the FP7 Coordinated and Support Action CAPPADOCIA, that focuses on research activities addressing the SRIA goal of cost efficiency, has conducted several interviews and organized dedicated workshops to gather the views of key RDT persons on existing scientific and technological gaps as well as on bottlenecks to innovation in the research landscape with respect to Challenge 2: "Maintaining and extending industrial leadership" as defined in ACARE's Strategic Research and Innovation Agenda. Additionally, projects and practices, potentially relevant for strategic recommendations suitable to close gaps and overcome bottlenecks have been analysed by the CAPPADOCIA team.

During the second year of CAPPADOCIA, the interview method has been improved based on experiences gained during the first year, and on the improvement analysis performed at the end of year 1. In the second year, interviews have been conducted with additional members of the target group of interviewees. In addition to the interviews, two dedicated workshops were organized at the European level. To reach a wide audience and increase potential attendance, these CAPPADOCIA workshops were held as sessions during two major European events where the RDT audience was relevant for the targeted expertise. The 5th EASN Workshop on Aerostructures and Aerodynamics 2015. In addition, several workshops were planned and organized at the national and regional levels by several CAPPADOCIA partners. The input gathered will be used for the completion of the 2nd year strategic recommendations report, aiming to support the EC for the creation of future Work Programmes, and ACARE for a potential update of the SRIA.

For more information please visit the CAPPADOCIA project website.



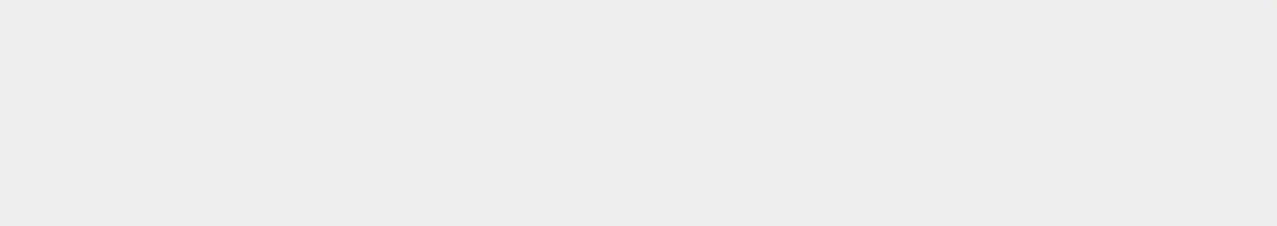
CATER experts consultation survey re-launched!

CATER -Coordinating Air transport Time Efficiency Research is a Coordination and Support Action of the European Commission dealing with the topic of time efficiency of R&I with two years of operation under its belt. CATER assesses the state of the art of R&I on time efficiency and identifies existing gaps & bottlenecks within the targeted research landscape according with the objectives set up in the call addressed. Both activities then lead to the edition of insightful recommendations reports that will be utilized by research policy makers and Air Transport time efficiency stakeholders. The CATER team is currently launching a dedicated online consultation survey aiming to gather the views of high profile R&I experts and key aviation stakeholders on:

- The main Time Efficiency shortfalls in today's European Air Transport System
- What innovations could most help the ATS community regarding Time Efficiency

If you sound of ACARE's valued Time Efficiency goals. The survey is a short, self-administered questionnaire which can be found here. The process is very simple and should not take you more than 15 minutes to complete. The outcomes of the questionnaire will be reported anonymously and aggregated into CATER "stakeholder consultation" reports.

For more information please visit the CATER website.



SUNET II

SUNET II, an initiative aiming at establishing a sustainable network for Japan-Europe aerospace research and technology cooperation, was present at the "7th European Aeronautics Days" held on 20-23 October 2015 in London, UK. SUNJET II hosted its own stand where representatives from both the EU and the Japanese delegation were present and available for short B2B meetings to discuss about the possibilities for cooperation and how one can be part of this initiative. Additionally, SUNJET II was represented in parallel session 3H of the second day "International Cooperation in Aeronautics Research". The Conference, attended by more than 1000 delegates, 280 key speakers and 90 exhibitors, was a positive enabler for industry, governments, the European Commission, research institutions, academia and many others, to come together, interact and present strategic perspectives and achievements in aviation research and innovation.

SUNET II will also be present at the ILA-Berlin Airshow in June 2016 at the Berlin ExpoCenter airport. Updated information will be posted on the SUNJET II website (http://sunjet-project.eu)

For more information please visit the SUNJET II website.

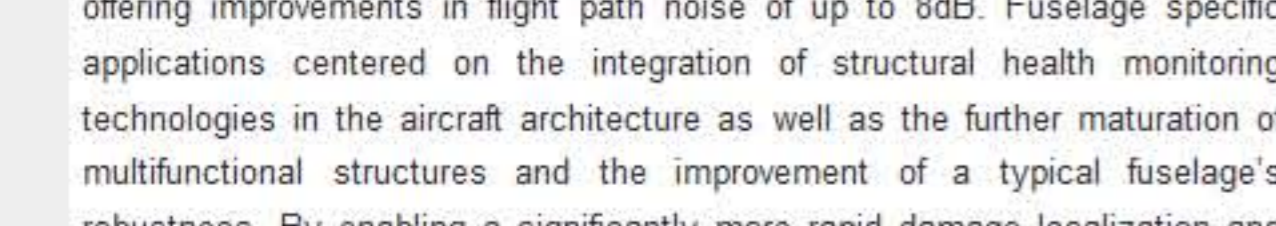


Other EU-funded projects: Latest news and achievements

SARISTU

The SARISTU project aiming at reducing manufacturing and operational cost of civil airplanes was successfully completed in time in August 2015. Organized along the major principal components of an aircraft, development and integration activities centered on wing specific applications on one hand and fuselage applications on the other. With respect to the wing specific applications, the further maturation and development of conformal morphing technologies, which enable a smooth shape change of aerodynamic surfaces, as well as the integration of structural health monitoring were at the focus of activities. By enabling the verification of conformal moving surfaces at the aircraft design stage, SARISTU considered these technologies capabilities to reduce the fuel consumption of future aircrafts by up to 6.5% while at the same time offering improvements in flight path noise of up to 80dB. Fuselage specific applications centered on the integration of structural health monitoring technologies in the aircraft architecture as well as the further maturation of multifunctional structures and the improvement of a typical fuselage's robustness. By enabling a significantly more rapid damage localization and assessment than is currently possible, aircraft structural inspections due to accidental damages can be performed much quicker. This in turn was shown to result in a cost reduction of such in-service inspection activities of more than 1.33% for carbon fibre based fuselage structures. Furthermore, improvements were investigated and developed within SARISTU's multifunctional structures approach which, among other solutions, arose from integrating carbon nanotubes into the basic skin-stringer-frame structure. The resulting gains can be exploited both directly and indirectly to realize weight savings of 5%. Culminating in wing and fuselage specific demonstration and performance verification activities in its fourth and final year, SARISTU has shown benefits beyond its original scope of more affordable air travel.

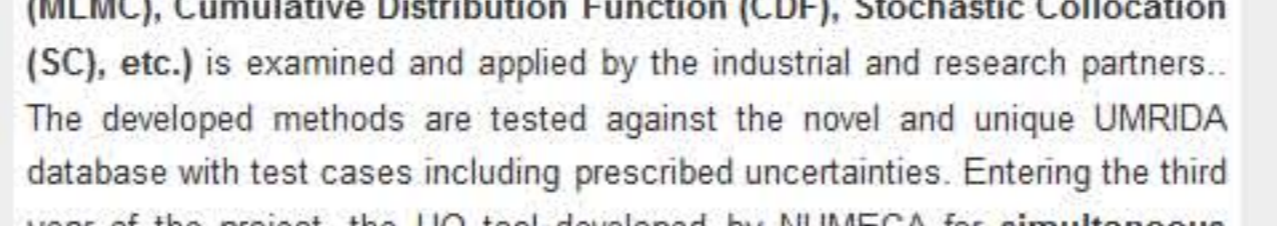
For more information please visit the SARISTU project website.



UMRIDA

The UMRIDA project aims at a paradigm shift in virtual prototyping away from deterministic design towards design under uncertainties, hereby bridging the gap between basic research to industrial design practice. The UMRIDA project focused within the first two years mainly on three large topics: first, the development of methods for handling large number of uncertainties; second, approaches to reduce the dimensionality of the non-deterministic problem including sensitivity analyses and building of surrogate models and third, the integration of these methods into industry ready tools. A variety of different techniques (e.g. Sparse Polynomial Chaos Analysis, Multi-level Monte Carlo Simulations (MLMC), Cumulative Distribution Function (CDF), Stochastic Collocation (SC), etc.) is examined and applied by the industrial and research partners. The developed methods are tested against the novel and unique UMRIDA database with test cases including prescribed uncertainties. Entering the third year of the project, the UQ tool developed by NUMECA for simultaneous operational and geometrical uncertainties, based on its FINETM/Design software package is released in an official version. Furthermore, the development of generalized geometrical uncertainties as introduced manufacturing uncertainties are accounted for. The consortium will focus within the last year of the UMRIDA project on Robust Design Optimization. A Robust Design workshop will be organized in Brussels on September 20th and 21st 2016.

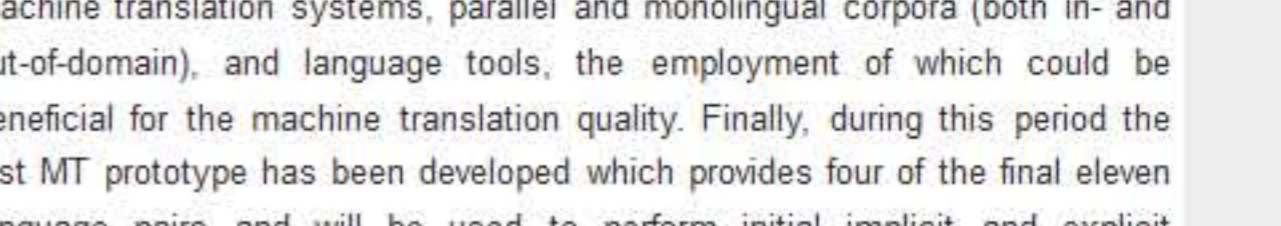
For more information please visit the UMRIDA project website.



TraMOOC

The TraMOOC project is in its 10th month of activities and the partners, after having developed the first Machine Translation (MT) prototype, are going full steam ahead its integration into the Jersly platform. More specifically, during this period the responsibilities of each partner and the language resources and tools to be employed/adapted/developed in TraMOOC have been defined and agreed providing a timeline for the project activities. The timeline is organised around the machine translation prototypes which will be produced within the project, thus making sure that the language resources and tools needed for each prototype will be ready on time. Additionally, a focused survey on existing and ready-available MT infrastructure, which could be employed within TraMOOC for the 11 language translations targeted, has been performed. This includes statistical machine translation systems, parallel and monolingual corpora (both in- and out-of-domain) and language tools, the employment of which could be beneficial for the machine translation quality. Finally, during this period the first MT prototype will have been developed which provides four of the final eleven language pairs and will be used to perform initial implicit and explicit evaluations for estimating the accuracy of the translated text. It is worth highlighting that the first MT prototype will be succeeded by the second version of the TraMOOC translation prototype in June 2016.

For more information visit the TraMOOC project website.



BALU

The Balu project is reaching the home straight with the help of an international consortium consisting of European and Japanese partners. Aim of the project was to develop new concepts for integrated wing ice protection systems (WIPS). New components shall significantly improve aircraft safety and reduce energy consumption compared to today's systems. Please visit our website www.jedace.net for further information.

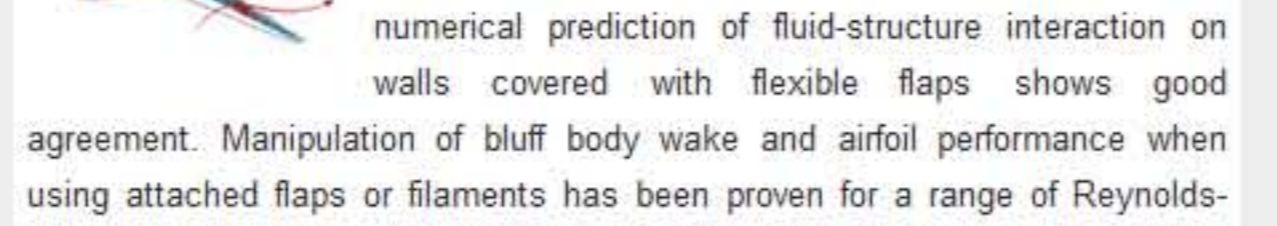
Three objectives have been studied in the project: incl. 1. Active de-icing devices in combination with anti-icing coatings, 2. Ice sensor systems for real-time measurements of ice accretions and 3. System integration of developed components. Due to the successful collaboration all partners decided to propose a follow-up project to go-ahead with the promising technologies for WIPS.



BOPACS

BOPACS "Boltless Assembly Of Primary Aerospace Composite Structures", an EU FP7 project, aims to reduce weight and cost of aerospace structures through the design of aerospace tolerant adhesive joints. Based on a road map that certification that is being developed within the project, the research focuses on features that arrest crack growth and disbond extension within the adhesive bondline considering high-cycle fatigue loading.

In order to achieve a thorough understanding of the mechanism involved in crack arresting features and to provide a predictive tool for the design process, simulation methods have been developed. This includes the simulation of complex crack growth in hybrid joints subjected to fatigue loading. Furthermore residual strength prediction under static loading is considered. For more information please visit www.bopacs.eu



TOICA

The TOICA project (32 partners) contributes to the thermally dissipative architectures by developing new trade-off mechanisms, new pyramids of models enabling earlier and more reliable assessments, new methods for more robust and deeper exploration of functions, and finally, new capabilities enabling architects to integrate more agilely the design space.

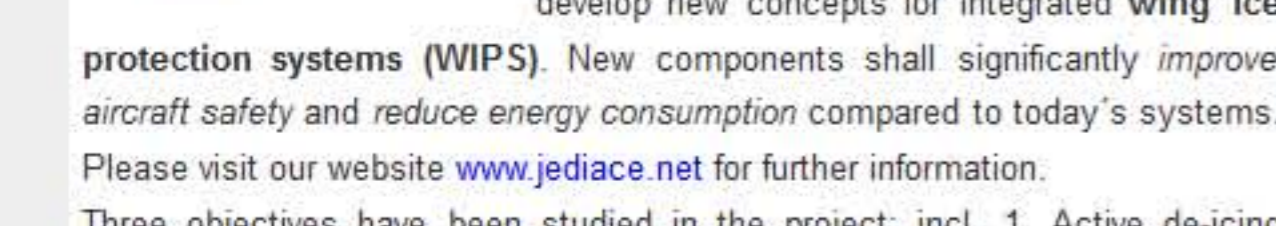
Six case studies illustrate on realistic aircraft configurations changes in thermal strategies and the benefits of the TOICA approach. Throughout the project, platforms are organised and reflect program like conditions where architects meet experts to launch assessments of thermal architectural alternatives. Maturities of both trade-off capabilities and new thermal concepts are evaluated. For more information please visit www.toica-fp.eu



JEDI ACE

The JediAce project is reaching the home straight with the help of an international consortium consisting of European and Japanese partners. Aim of the project was to develop new concepts for integrated wing ice protection systems (WIPS). New components shall significantly improve aircraft safety and reduce energy consumption compared to today's systems. Please visit our website www.jedace.net for further information.

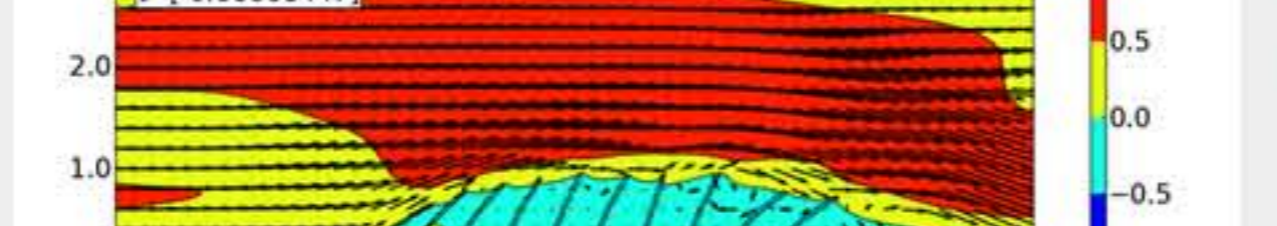
Three objectives have been studied in the project: incl. 1. Active de-icing devices in combination with anti-icing coatings, 2. Ice sensor systems for real-time measurements of ice accretions and 3. System integration of developed components. Due to the successful collaboration all partners decided to propose a follow-up project to go-ahead with the promising technologies for WIPS.



PERL SKIN

PERL SKIN: A novel kind of surface coatings in aeronautics. Comparison of experimental and numerical prediction of fluid-structure interaction on walls covered with flexible flaps shows good agreement. Manipulation of bluff body wake and airflow performance when using attached flaps or filaments has been proven for a range of Reynolds numbers. Homogenization approach for poro-elastic layer shows possible route for simulations of larger surfaces.

Examples given below show the comparison of experiment and CFD for oscillating flow in a channel with flexible flaps. Well seen is the generation of shear-layer roll-up on the top layer of the flaps along with the generation of Henami-waves. The poro-elastic boundary conditions change the phase and energy of instability modes as shown in DNS simulations and experiment.



myCopter

The myCopter project (2011-2014) aimed to pave the way for personal aerial transportation by investigating the enabling technology required to make Personal Aerial Vehicles (PAVs) a reality. To this end, models reproducing the unsteady dynamics for potential PAVs were designed and implemented on handling aerial vehicles and in motion simulators. Investigations into the human capability of flying a PAV were conducted, resulting in a user-centered design of a suitable human-machine interface (HMI). Furthermore, the project introduced new automation technologies for obstacle avoidance, path planning and formation flying, which also have relevant application potential in other aerospace domains. For more information please visit www.mycopter.eu/



GRAIN 2

VIKI will host the GRAIN2 Open Greener Horizon Forum on sustainable technologies concerning the environment and the energy supply. Keynote speakers from industry, research and public institutions will share their perspectives on the new global challenges of eco-efficiency in the context of Flightpath 2050: Impact of aviation emissions, future opportunities of developing technologies for new environmentally friendly aircrafts.

GRAIN2 Supported Action is providing inputs and roadmaps for the development of large scale simulation strategies for greener technologies to meet the future requirements on emissions, fuel consumption and noise. To reach this, green technologies efforts are being collected and prospecting in three major lines: Air Vehicle, Air Transport System and Sustainable Energies. Please find more information here:



Evita

New non-destructive inspection technique for composite components! The European project EVITA demonstrates the applicability of grating-based phase contrast imaging for the non-destructive inspection of composite components with unprecedented sensitivity for the detection of cracks, porosity and wavy fibers - among others.

EVITA partners: CSEM (coordinator), Dassault Aviation, GMI Aero, the University of Manchester and the National Technical University of Athens.

A fully automated demonstrator is available for the industry and Academia in order to perform tests and service measurements for sample size up to 1 x 0.75 m2 (lateral size).



SOAR

The EU-FP7 funded SOAR project is devoted to investigating the flight physics of a novel propulsion technology for an USTOL aircraft (FanWing) over a demonstrator scale model. The project encompassed the development of necessary electric drive and control systems (USAAP), exhaustive wind tunnel experimentation and CFD analysis (VKI), and finally an economical feasibility study of the aircraft for possible applications and prospective markets (DLR).

The SOAR project results revealed insights into the flight physics behind the technology and the economic performances for a variety of applications. Freighting and agricultural missions were found to be the most promising applications that would gain a tangible economic advantage by utilizing the unique low speed maneuvering and short takeoff ability of the FanWing aircraft. For more information visit www.soar-project.eu



NOVEMOR

A drop nose morphing wingtip has been developed by the Institute of Composite Structures and Adaptive Systems of the DLR as part of the EU project NOVEMOR. The application was a regional jet from project partner Embraer, and wind tunnel tests at the University of Bristol showed the structure performing as desired under aerodynamic loads.

The structural design featured a seamless 3D optimized composite skin and superelastic nickel titanium and aluminum nitride compliant mechanisms. The compliant mechanisms were designed through a topology optimization method such that they are able to deform to precise target shapes whilst capable of withstanding external loads. For more information visit www.novemor.eu/

