



APS Meetings Congress 2021

Preprogram

TUESDAY JUNE 29TH

08:45 - 09:00

Congress introduction



Philippe BAUER - THALES

09:00 - 09:30

3D printing, recycled materials!



To accelerate 3D printing's adoption as a production tool, the development of new materials to meet market needs is key. The recyclability of these materials is one of the links in the value chain in the overall production process. New materials must have the lowest possible environmental impact.

Xavier TRESSEL – HP



09:30 - 10:00

From Drilling and Cutting technologies to Metal 3D Printing for mass production. Key Factors.



Power Laser is a must to produce metal parts with high accuracy, such as welding, drilling and cutting. Power Laser is going to SLM process for Metal 3D Printing and is now well known to manufacture high added value parts in small and medium batches. Is this technology useful for mass production for industrial metallic parts? How to go from a profitable business model using traditional power laser technologies and which are key factors?

Pierre FARGE – **SATURNE TECHNOLOGY**



10:00 - 10:30

Advanced lattice control, real-time simulation, generative design: Creo embed latest technologies to allow 3D printed part designers to make the best choices the fastest way.

During this presentation, you will be put in the shoes of an engineer in his day to day challenges around 3D printing. We will first show how to generate automatically parts and compare them to find the best solution based on functional requirements and some printing requirements. Then we'll demonstrate how to optimize an existing part for 3D printing by ensuring its mechanical resistance while considering the challenges around supports. This presentation will be done under the unique Creo environment, from the generation of geometries to the "click to print".



Adrien MARTIN – **PTC**



Thierry SIMON - **PTC**



[10:30 - 11:00](#)

Switch to mass production of metal parts with Desktop Metal SHOP System



With the arrival of Binder Jetting Metal technologies based on MIM, the mass production of metal parts is now accessible to as many people as possible. Discover Desktop Metal's SHOP System and its extensive production capacities.

Alexandre BROSSEAU - KREOS



[11:00 - 11:30](#)

BONE 3D – Who are we ?



The presentation describes BONE 3D activities, in medical devices, surgical simulators and 3D printing platforms.

Jérémy ADAM – BONE 3D



[11:30 - 12:00](#)

Additive Manufacturing in Normandy



NAE - aeronautics, space, defence and safety network in Normandy – will show how the Additive Manufacturing Sector is structured in Normandy.

Sébastien VERNAY- Normandie AeroEspace (NAE)



[12:00 - 12:30](#)

ROUND TABLE 1

14:00 - 14:30

Integration of additive manufacturing for the benefit of the maintenance of army land equipment.



Additive manufacturing is likely to guarantee army maintenance units, both in metropolitan France and abroad, a reactive capacity to manufacture simple spare parts while reducing the constraints of orders, flows and management. stocks. The presentation describes the process of appropriating this technology for the benefit of the maintenance of land-based equipment, and how the specificities of the field have been taken into account and the projects being integrated.

Antony GUILLOT - **Ministry of the Armed Forces**



14:30 - 15 :00

Ceramic Additive Manufacturing for the New space



3D Printing is a technology which remains associated with prototyping and spare parts for most of the people. However, forefront sectors, like aerospace or biomedical, rapidly understood how to take advantages from it and jumped, from the very beginning, on the opportunity to actively participate to its development. They could see the possibilities to produce parts not possible with traditional processes, with new design to enhance parts and add functionalities to get better performances. And above all, 3D Printing works with different materials among which are the technical ceramics! For years, at 3DCeram, we have been working to challenge the prototype and material qualification steps to end to successes! Then we have arrived, now, to the production stage, the so-called mass customization. Is it now reliable? The answer arises from 2 case-studies coming from the aerospace field. The first one concerns a new space player a nanosatellites builder, the second is a company that designs and manufactures spacecraft thrusters for nanosatellites

Richard GAIGNON - **3DCERAM**



15:00 - 15:30

Reshaping additive manufacturing with ERPRO and Carbon®



Clip™ resins and their strength presented by Erpro Group, exclusive partner for Carbon® in France. Plenty of automotive use-cases ensured Carbon® Clip™ strong ties with American major companies and institutions. Clip™ 3D printing helps us getting rid of ALM's main issue: layer thickness and boundary layer effect. Erpro presents its feedback and next steps.

Gaël SPIRAL – ERPRO



15:30 - 16:00

Med In Town offers a "click and use" 3D printing solution for Polymeric Medical Devices that can be used in the operating room.



Med In Town is a French Start-Up whose objective is to provide healthcare establishments with a solution for the In situ production of polymeric medical devices obtained by additive manufacturing. The Micro-Factory is a production solution allowing the transformation of digital files into Devices that can be used in the operating room.

Jérôme PRECHEUR - MED IN TOWN



16:00 - 16:30

Massivit 3D printer with GDP technology

Experience unprecedented production speed for full-scale prototypes, molds, and technical parts using the new Massivit 3D printer with GDP technology.



Gaspare BUGLI – **MASSIVIT 3D Printing Technologies Ltd**



Jérémie POLESE - **Stratiforme Industries**



16:30 - 17:00

Multi-functional Structures for Satellites : from Concept to Reality

After a wide common experience on AM aluminum mechanical structures, THALES ALENIA SPACE and LISI AEROSPACE ADDITIVE MANUFACTURING took up the challenge of the realization of a large monolithic structure cumulating thermal control functions to traditional mechanical functions for a satellite equipment support. The different steps of the project will be presented as well as testing results obtained on the structure and perspectives to target the orbit entering in 2023.



Florence MONTREDON - **Thales Alenia Space**



Sébastien EYRIGNOUX - **LISI AEROSPACE ADDITIVE MANUFACTURING**



17:00 - 17:30

CLIPFAM

CLIPFAM is a collaborative project gathering academical (INSA Rouen Normandy, ENSICAEN, GPM, LMN, CRISMAT) and industrial parties (ArianeGroup, Volum-e, 6NAPSE Group, NAE). This project has the ambition to characterize metal powder bed, to correlate those characteristics with final product ones and to propose a new powder characterisation criterion in Additive Manufacturing: spreadability. During APS Meetings, first results and conclusion will be given, especially in regards to the impact of recycling on mechanical properties.



Eric BAUSTERT - Volum-e



Romain DUPUIS - Groupe 6NAPS



17:30 - 18:00

From Topology optimization for Additive Layer Manufacturing to Data Science.



Aurélien FUSSEL – ALSTOM



Juan Pedro Berro RAMIREZ – ALTAIR



18:00 - 18:30

ROUND TABLE 2

WEDNESDAY JUNE 30TH

08:30 - 09:00

Alliance du futur, France Additive and Symop: the same ambition for the French 3D printing industry



France has many assets and has many talents which give it every chance of being among the world leaders in additive manufacturing. However, we lack a bit of rhythm and coordination to scale up. The recovery plan, sector contracts and synergies between players in the value chain are real levers in 2021 to move faster from research to uses. I suggest that you take stock of the actions in progress and the first significant results.

Christophe ESCHENBRENNER - France ADDITIVE



09:00 - 09:30

Metal additive manufacturing for the Medical Industry: from pipette syringe molds to optimized lattice structures for implants, a focus on two applications



GF Machining Solutions is dedicated to providing high-end solutions to the Medical Industry across relevant application cases and manufacturing technologies. The presentation will cover two typical medical applications:

- A pipette syringe mold optimized to leverage the unique features of additive manufacturing and its integration within a conventional manufacturing workflow.
- A study on the design and manufacturability of lattice structures for implants, focusing on the importance of the interconnection and consistency between software and hardware

Jean Louis FACILA – GEORGFISCHER



09:30 - 10:00

From pellet to object: 3D printing of performance materials



Pollen AM has developed PAM (Pellet Additive Manufacturing) technology, an open 3D printing process using thermoplastic pellets as raw material. This approach allows users to free themselves from dedicated 3D printing formats and offers complete freedom in the choice of materials and suppliers. Pollen AM's positioning as a specialist in the transformation of thermoplastic pellets in 3D printing has led to the validation of a modular system that can be configured according to the materials to be transformed. Our presentation will focus on the transformation of performance materials and in particular on our achievements with certified materials for smoky fire or medical applications.

Thibaud DESHONS - **POLLEN AM**



10:00 - 10:30

CATIA enters the age of lattice



In this session, you'll get an introduction to the lattice, especially, what it could be used for in the industry. Something which is not that well known, is that the problem is not only at the design stage but mainly for the FEA validation but also for the manufacturing even if we're talking here about additive manufacturing. 3DXPERIENCE Solutions will be used as a support of the presentation.

Daniel PYZAK - **DASSAULT SYSTEMS**



10:30 - 11:00

Heat-exchanger design with nTopology

One of today's biggest challenges when designing for additive, is to create complex geometries. Traditional CAD software was not foreseen for that scope as the geometries were impossible to manufacture at the time. This is even more true when working on heat exchangers: the surface density (and in consequence the number of features) that is inherent to this application makes it very difficult to handle the geometries. Today thanks to nTopology, Temisth team is able to quickly design extremely detailed and complex geometries that can take into account fields coming from external simulation software like STAR-CCM+ or Fluent and we will show you how.



Sebastian TOGNACCA - **TEMISTH**



Ayrton GESLIN - **TEMISTH**



t e m i s t h

11:00 - 11:30

Mass production by 3D printing FDM



FDM additive manufacturing technology is often associated with prototyping with flaws in appearance. However, it responds advantageously to many needs, both economic and industrial: Functional parts with various properties, assembly parts and tools at very competitive costs. Bombyx Prod created in 2017 a new serial production FDM machine for its AMaaS (Additive Manufacturing as a Service) 3D printing service. We quickly became a French leader in FDM serial production, with 300,000 parts produced over the past two years, on only 4 Bombyx Prod 3D printers. On the occasion of the APS Meetings congress, we will present FDM serial production and our dedicated production means. Then we will share our feedback illustrated by customer cases.

Philippe KERVIZIC - **BOMBYX Prod**



11:30 - 12:00

On our way to mass production...



Thanks to its latest innovations, SLM Solutions opens up new fields of opportunities for the Selective Laser Melting technology. The new large envelope machine SLM NXG XII 600 featuring 12 lasers of 1kW each and SLM's innovative supportless technology enable mass production to become reality.

Jean Christophe VIDIL - **SLM SOLUTIONS**



12:00 - 12:30

ROUND TABLE 3

14:00 - 14:30

Unlocking the Next Revolution in Additive Manufacturing : high-performance and sustainable thermoplastics for demanding functional applications



Additive Manufacturing is increasingly becoming a relevant alternative to conventional plastic processing methods such as injection molding or stock shape machining. To be used in demanding applications, 3D-printed parts cannot allow any compromise on their performance. Besides, these technologies must deliver measurable cost savings either by shortening supply chains, reducing inventories, cutting development time or by lowering the cost per part.

Thanks to our expert knowledge of end markets, our network of complementary partners and our broad line of solutions, Arkema can advise decision-makers and help them choose the material and printing technology best suited to their needs. This presentation will give some details on Rilsan® PA11, Kepstan® PEKK, Pebax® TPE and Kynar® PVDF grades for Additive Manufacturing, as well as show real end-use cases.

Xavier BERGAMINI – **ARKEMA**



14:30 - 15:00

Modular additive manufacturing factory solution



The integration of metal additive manufacturing requires a suitable layout, integrating health and safety aspects. Also, CESI has developed with CAPSA Container a patented solution based on the use of recycled containers. A true autonomous and modular factory meeting the best HSE standards, it integrates all the equipment necessary for its power supply and operation. The first copy produced was equipped by Addup with an industrial capacity printer, to which is added the entire value chain: powder storage, airlock, post-treatment, etc. This production unit can be compatible with any process, fitted out as needed, but also transported in a few days. This complete solution is particularly competitive on the one hand for production as close as possible to need, within an existing plant or on isolated sites.

Jean-Daniel PENOT - CESI



15:00 - 15:30

Impression 3D Metal : Additive Micro Welding



INETYX offers you an innovative process, patented and marketed under the AMW brand. With the new hybrid system AMW300X, experience a new principle of manufacturing by laser micro welding and finishing by simultaneous machining.

Patrick TEULET – INETYX



15:30 - 16:00

Smart Additive Manufacturing: Hexagon supports the industrialization of your AM activity, from product design and process simulation to production, all the way to final part inspection.



Highlighted by concrete examples, Hexagon will present its concept of a smart additive manufacturing solution. This solution and the platform that supports it will accelerate the digital transformation and industrialization of additive manufacturing by:

1. connecting the different steps of the AM product development and manufacturing chain, from generative design to process simulation (including post-treatment and secondary OPs such as heat treatment and milling) to quality control,
2. automating workflows reflecting your AM activity,
3. providing organized data captured throughout the complete chain, ready for analytics, in order to better understand quality issues and make informed and impactful decisions.

Mathieu PERENNOU – **HEXAGON**



16:00 - 16:30

3D printing and digitization applied to the post-operative management of orthopaedic surgery.

ZFab develops new generation orthosis thanks to digitalization and the latest 3D printing technologies. We will now present one of our products undergoing patent. It is a patient-specific orthosis for the postoperative management of hallux valgus (big toe), developed with the Assal clinic in Geneva and in particular with the surgeon Dr Dubois-Ferrière. We will also present the completely digitalized workflow that we are implementing.



Alexandre PFISTER – **ZFAB**



Dr Victor DUBOIS-FERRIERE – **ZFAB**

