



Special Interest Group:
Advancing Precision in Additive Manufacturing
19th-21st September 2023

KU Leuven, Belgium



Dear delegates,

We very much look forward to welcoming you to euspen's Special Interest Group meeting on Advancing Precision in Additive Manufacturing which will take place at KU Leuven in Belgium from Tuesday 19th – Thursday 21st September 2023.

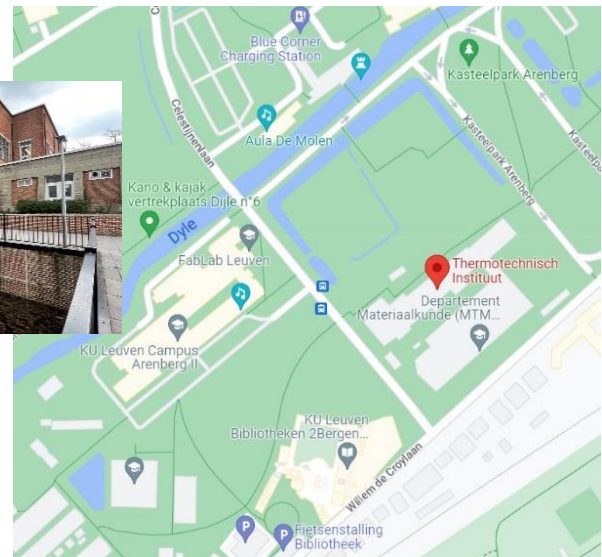
To help you with your planning, we have provided a summary of key information for the meeting. For any questions, please contact info@euspen.eu.

Meeting Location

Address:

Thermotechnisch Instituut
Kasteelpark Arenberg 41
3001 Heverlee

Building number: 337-01



The Thermotechnisch Instituut is located on the Arenberg campus of the KU Leuven, located just outside the city centre. Further travel information can be found on the Veune, Travel & Social [webpage](#).

Parking is available next to the Department of Mechanical Engineering, on the right-hand side, just after the large gears statue.

Registration

Registration will take place on **Tuesday 19th September** from **08:15 – 09:00**. Upon registering you will be given your delegate badge and meeting programme. We kindly request that you return your delegate badge at the end of the meeting.

Please note, consumption of food and drink is **not** permitted in the plenary/auditorium.

Conference Proceedings & Extended Abstracts




All abstracts and an interactive copy of the conference proceedings will be accessible via the proceedings section of the euspen [knowledge base](#) from Tuesday 12th September. Please select 'SIG Additive Manufacturing' from the event drop down to access these documents.



Programme

The full meeting [programme](#) is available on the event webpage and a summary of the day's events are detailed below. Please note that all times are shown in Central European Summer Time (CEST).

Date	Programme Summary	Time (CEST)
Tuesday 19th September	Meeting: Day 1 <ul style="list-style-type: none">- Keynote, State-of-the Art & oral presentations- Discussion sessions- Industry Presentations- Networking dinner	09:00 – 16:45 18:00 – 21:00
Wednesday 20th September	Meeting: Day 2 <ul style="list-style-type: none">- Keynote, State-of-the Art & oral presentations- Discussion sessions- Rapid fire poster session- Laboratory tour	09:00 – 18:00
Thursday 21st September	Meeting: Day 3 <ul style="list-style-type: none">- Keynote & oral presentations- Discussion sessions- Poster session	08:30 – 15:30

Keynotes & State-of-the-Art Reviews

<u>Keynotes</u>		
Tuesday 19th September 13:45 – 14:15		Dr Ian Laidler <i>Wayland Additive, UK</i> “Neubeam Electron Beam PBF and the advantages of active charge neutralisation”
Wednesday 20th September 14:00 – 14:30		Dr Michele Pavan <i>Materialise, BE</i> “Assessing part quality at different stages of the AM workflow”
Thursday 21st September 08:30 – 09:00		Dr Joy Gockel <i>Colorado School of Mines, US</i> “Surface formation and measurement toward additive manufacturing fatigue properties prediction”
Thursday 21st September 13:10 – 13:40		Niels Holmstock <i>3D Systems, BE</i> “Manufacturing precision parts with complex geometries using metal LPBF”

State-of-the-Art Reviews		
<p>Tuesday 19th September</p> <p>09:30 – 09:55</p>		<p>Prof. Matthijs Langelaar <i>Delft University of Technology, NL</i></p> <p>“Topology Optimization for Additive Manufacturing – Focus on Precision”</p>
<p>Wednesday 20th September</p> <p>09:00 – 09:25</p>		<p>Dr Ho Yeung <i>National Institute of Standards and Technology, US</i></p> <p>“Voxel level laser control for the laser powder bed fusion process”</p>

Oral Presentations

A detailed timetable of all oral presentations can be found on the meeting [programme](#). Questions will be taken during the discussion sessions.

Discussion Sessions

The discussion sessions will be an opportunity for delegates to ask the oral presenters questions and enter into open discussion around state-of-the-art practice, key research, and developments. These sessions will be facilitated by the oral session chair.

Poster Presentations

Rapid fire poster session

The rapid fire poster session will take place on **Wednesday 20th September** from **11:30 – 13:00**. During this session each poster presenter will give a 4-minute presentation of their poster, giving delegates an understanding about the subject matter and the principal conclusion.

Poster session

Delegates will have an opportunity to ask poster presenters questions during the poster session which will take place on **Thursday 21st September** from **11:10 – 12:10**.

Poster presenters, you will find your poster number on the meeting [programme](#).

Networking Dinner

The evening networking dinner will be held on **Tuesday 19th September** from **18:00 – 21:00** at the **De Hoorn, Leuven**.

Address: De Hoorn, Sluisstraat 79, 3000 Leuven

Coach transport to the Networking dinner will be provided. The coach will leave the Thermotechnical Institute at 17:30.


Please note, as the networking dinner will be held in the city centre return transport will not be provided. Delegates will be required to make their own travel arrangements after the networking dinner has finished.

Sponsors & Exhibitors

We are extremely grateful to our conference sponsor and exhibitors who are sponsoring and supporting this event.

The exhibition will be open throughout the event. We encourage delegates to visit our exhibitors to find out more about the latest advancements and technologies. You will find information about each exhibitor on the exhibitor webpage.

A dedicated Industry session will take place on **Tuesday 19th September** at **12:05** for exhibitors to give a 5-minute presentation about the company and its capabilities.

Event Sponsor	
	ZEISS Industrial Metrology is the official event sponsor for the meeting.

Exhibitors	
ZEISS Industrial Quality Solutions	<p>ZEISS Industrial Quality Solutions is a leading manufacturer of multidimensional metrology solutions. These include CMMs, optical and multisensor systems, 3D X-ray metrology and microscopy systems for industrial quality assurance. By developing solutions specifically for additive manufacturing, from material and parameter development, ensuring printer equivalency, process qualification and stability, to in-process monitoring based on artificial intelligence for fully automated analysis of defect types and characteristics, without disrupting the production process – ZEISS Additive Manufacturing Solutions is providing fully digitized workflows, enabling to improve quality, understand causes of failure, drive sustainable process improvements, and set standards to enable large-scale industrialization.</p> <p>For more information please contact:</p> <p>Dipl.-Ing. (FH) Andreas Tietz Global Head of Sales ZEISS Additive Manufacturing Technology ZEISS Industrial Quality Solutions andreas.tietz@zeiss.com</p> <p>Carl Zeiss Industrielle Messtechnik GmbH Carl-Zeiss-Str. 22 73447 Oberkochen, Germany www.zeiss.com</p> 
UpNano	<p>UpNano is a Vienna (Austria) based high-tech company with the focus on development, manufacturing and commercialization of high-resolution 3D-printers. The systems are based on 2-photon-polymerization which offer industry-leading speed and resolution down to 0.2 µm. UpNano is committed to providing customers with a holistic package of hardware, software and optimized printing materials, for the fabrication of polymeric microparts as well as the unique possibility of bioprinting in a native cell environment. Using UpNano's cutting-edge technology makes it possible to print objects with sizes ranging from the sub-micrometer to the centimeter range and up to 40 mm in height – within times and precision never achieved before.</p> <p>UpNano was founded in September 2018 as a spin off of the TU Wien and has since developed into an established provider of 3D printing systems for research facilities, universities and businesses worldwide.</p> <p>For more information please contact:</p> <p>Viktoria Gruber Team Lead Marketing & Corporate Communications +43 (0) 1 8901652 - 206 Viktoria.gruber@upnano.com www.upnano.com</p> 

Laboratory Tour

The laboratory tour will take place on **Wednesday 20th September** from **16:40 – 18:00**.

The KU Leuven department of mechanical engineering houses several well equipped manufacturing labs and has historically embraced the strong link between manufacturing and metrology. The AM labs specifically are home to more than 10 LPBF machines with unique capabilities for metals, ceramics, and polymers, including dual laser systems, non-Gaussian beam shapes, slurry based deposition systems, and advanced monitoring tools. The metrology labs contain a range of systems for optical or multisensory scanning and dimensioning of parts, and surface characterization. They are complemented by two Nikon XCT machines for internal and external measurements and quality control of complex shaped parts.

The tour will highlight recent work on in situ surface finishing of metal AM parts, AM of challenging materials such as copper and ceramics, and other AM developments. It will showcase recent work on dimensional metrology applied to conventional and AM manufacturing, with a focus on a novel fringe projection setup for the quick inspection of large components. Finally, progress in XCT for AM will be presented, from both the experimental point of view and advanced CT reconstruction/analysis algorithms. The tour visit comprises both AM labs, the metrology lab, the XCT facilities at the department, and other available metrology systems.

Please note, photography is **not** allowed in any of the laboratories.

On behalf of the **euspen** team and the organising committee, we wish each of you a pleasant and safe journey and look forward to meeting in Belgium.