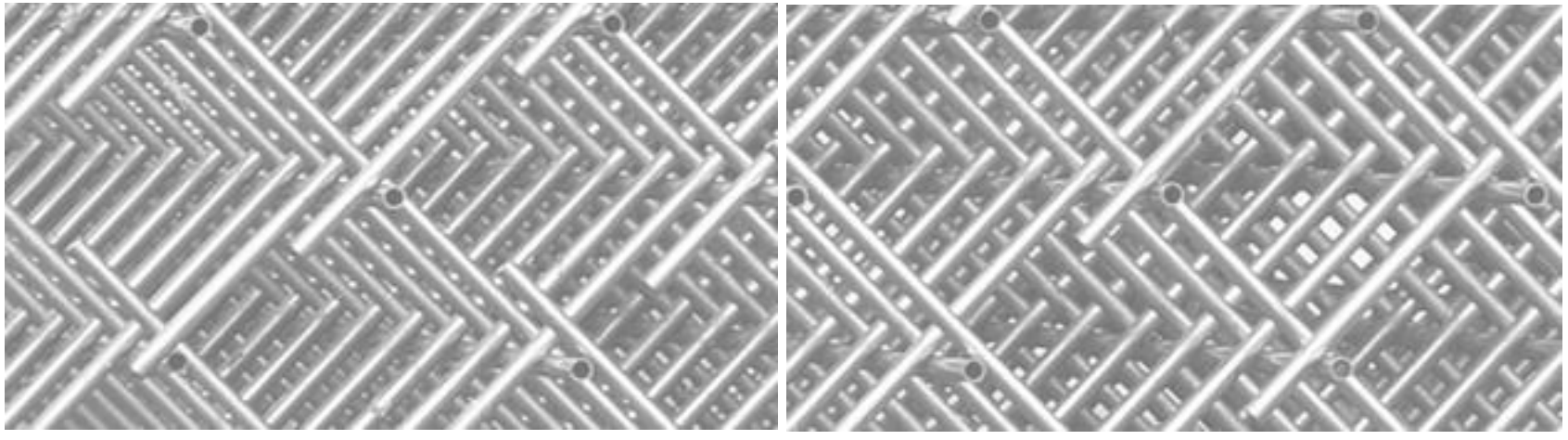
Lightme

LightMe OITB – Test cases

February 11th 2021



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LightMe Test cases

Objectives:

- Validate the proper operation of the ecosystem through upscaling, testing and demonstrating the concepts introduced in operation environment.
- Proceed with improvements of operational procedures based on the feedback received from the test cases.
- Test cases will provide the necessary feedback to the Ecosystem in order to improve its services and the internal communication between the elements of the LightMe Ecosystem.

LightMe Upstream Test cases

	Test Case	Lightme Objectives	Approach
MBN nanomaterialia	**MBN:** Al and Ti pre-alloyed nanostructured MMC powders: Ti/TiC, Al/SiC, Al/graphite for application in SPS and AM PLs. ***TRL5***	Set-up of an efficient production cycle for Al-MMC powder for SPS and Ti-MMC for AM	Mechanical alloying by High Energy ball milling
magnesium.com	**MgCom:** Al and Mg pre-alloyed wire containing graphene for MWAM, Mg/CNTs castable alloys. ***TRL4***	30-35% lighter than Al alloys	Electromagnetic melt shearing (EMS)

Upstream test cases → **Novel MMnC materials** → **Downstream test cases**

LightMe Downstream Test cases

	Test Case	Objectives	Approach
AML	**AML**: Evaluation of precision machinability of Ti MMCs (Fairing panel cells, Ti, Al ribs, aerofoils). ***TRL5***	Weight reduction, enhanced wear resistance	Al-MMC, AA7075-SiC/TiC by WLAM
J-VST s.r.o. JEDOVNICKÝ Výroba součástí tvářením	**JVST**: Ti MMC for self-lubricant and wear resistance sleeve bearings, Al/SiC of high wear resistance for frame elements and fasteners via SPS/KOBO. ***TRL5***	Increase component's strength and stiffness	*SPS-KOBO – AA7075 based MMC*

LightMe Downstream Test cases

	Test Case	Lightme Objectives	Approach
GROUP KAMPAKAS	**Kampakas:** Al/TiO2 handles and doorknobs with self-cleaning & anti-bacterial properties produced by GSC. ***TRL5-6***	Anti-bacterial propeties by retaining of TiO2 of MMC	GSC, LPDC – AI based MMC
Hidria	**Hidria:** Al/SiC stirring pinions produced HPDC. ***TRL4-5***	Decreasing the component weight of about 60%.	*HPDC, LPDC, GSC – AI basesd MMC*

LightMe Downstream Test cases

	Test Case	Lightme Objectives	Approach
COŞKUNÖZ HOLDİNG	**Cosk:** Ti MMC lower drag brace of excellent fatigue resistance via AM. ***TRL4***	Improved fatigue resistance and lightweight multi-functionality	WLAM, DED - Ti-based MMC
DIAD GROUP ES	**DIAD:** TiAl4V6 MMC powertrain gear box produced by AM. ***TRL4-5***	Increased stiffness and strength in all the temperature range	*DED – Ti based MMC*

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Thank you for your attention

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