Fatigue life assessment of additively manufactured material through a hybrid framework

Fact Sheet

Project Information

FLAME

Grant agreement ID: 101148340

DOI
10.3030/101148340

EC signature date
7 August 2024

Start date
1 July 2025

End date
30 June 2027

Funded under
Marie Skłodowska-Curie Actions (MSCA)

Total cost
No data

EU contribution
€ 188 590,08

Investment in EU policy priorities

Digital agenda	●	Clean air	◐
Artificial Intelligence	●	Climate action	◐
Biodiversity	○		

Coordinated by
POLITECNICO DI MILANO
Italy

Project description

Fatigue resistance for sustainable production

Additive manufacturing (AM) promises a sustainable future by reducing the environmental impact of industrial products. However, its widespread adoption is

limited by poor fatigue resistance in AM materials due to inherent surface and internal defects. Current post-processing treatments can improve fatigue resistance but are costly, time-consuming, and sometimes impractical. Supported by the Marie Skłodowska-Curie Actions programme, the FLAME project seeks to overcome these challenges by developing a hybrid framework that integrates physics-based models with machine learning. This approach aims to enhance fatigue life prediction accuracy from 75 % to 90 %, reducing the need for extensive post-processing and cutting production time to under a minute. FLAME's innovations are expected to advance AM technology.

Fields of science (EuroSciVoc)

natural sciences > mathematics > pure mathematics > **geometry**

Keywords

Additive Manufacturing | Fatigue | Surface Integrity | Simulation

Programme(s)

HORIZON.1.2 - Marie Skłodowska-Curie Actions (MSCA) MAIN PROGRAMME

Topic(s)

HORIZON-MSCA-2023-PF-01-01 - MSCA Postdoctoral Fellowships 2023

Call for proposal

HORIZON-MSCA-2023-PF-01

See other projects for this call

Funding Scheme

HORIZON-TMA-MSCA-PF-EF - HORIZON TMA MSCA Postdoctoral Fellowships - European Fellowships

Coordinator

POLITECNICO DI MILANO

Net EU contribution

€ 188 590,08

Total cost

No data

Address

PIAZZA LEONARDO DA VINCI 32
20133 Milano
Italy

Region

Nord-Ovest > Lombardia > Milano

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Partners (1)

PARTNER

THE UNIVERSITY OF SHEFFIELD

United Kingdom

Net EU contribution

€ 0,00

Address

FIRTH COURT WESTERN BANK
S10 2TN Sheffield

Region

Yorkshire and the Humber > South Yorkshire > Sheffield

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Total cost

No data

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