



ESAFORM Webinar Series 2025

Circular engineering of aluminum alloy chips through friction stir based processes

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<https://www.unipa.it/dipartimenti/ingegneria/en/index.html>

Date/time: Friday 13 June 2025 - 3 pm CET

Registration link, to receive the information for the connection:

https://videoconf-colibri.zoom.us/meeting/register/z0ZwUqw-RBa21xHsJ-R1_A

Abstract

The production of raw materials is becoming more and more a key aspect due to both economic and environmental issues. As metals are regarded, recycling is still the most applied strategy, offering both economic and environmental advantages. Traditionally used industrial remelting operations are characterized by low efficiency, in turn solid State Recycling (SSR) strategies can be considered as an effective alternative to remelting-based routes. In the seminar an overview of the so-called friction stir based operations used to get the SSR of metal chips will be given both the experimental and numerical point of view. Furthermore, the possibility of using a two-step process approach consisting of friction stir extrusion and friction stir extrusion-based additive manufacturing, allowing the recycling of aluminum alloy chips in a unique and “circular” production cycle, will be shown.

Biography

Prof. Livan Fratini graduated with honours in Mechanical Engineering in 1993 and took his PhD in Production Engineering at University of Palermo in Italy in 1997. Currently, he is full professor of Manufacturing at the University of Palermo. He has been Vice-Rector for Research and Third Mission from 2018 to 2021. Since November 2024 he is Director of the Dept. of Engineering. The scientific activity has been mainly focused on the development of numerical models for the analysis of the plastic behaviour of metals during forming processes. Most recently he has been working on solid bonding processes. He has been coordinating or involved in several national and international research projects. Prof. Fratini was awarded the F.W. Taylor Medal by the CIRP (2007). He has been Vice-President of AITEM (Italian Association of Manufacturing) in 2013-2017; he is Fellow of CIRP (The International Academy for Production Engineering). He has been President of Namri/SME for 2022-23; he has been President of ESAFORM (European Scientific Association for Material Forming) from 2020 to 2024.

