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Dr.-Ing. Dipl.-Wirt. Ing.
Thomas Gries
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Ref.: PH
18.02.2021

Project title:	NearNetMAC – Design and development of near-net-shape manufacturing process for light weight high strength aluminium composites by squeeze infiltration
Partner:	• CSIR-National Institute for Interdisciplinary Science and Technology (NIIST), Trivandrum, India • Fenfe Metallurgicals, Bangalore, India • Cikoni GmbH, Stuttgart,Germany
Duration:	04/2019 – 03/2022
Funding Agency:	IGSTC 2+2 (DST India and BMBF Germany)

The increased demand for lightweight materials with high specific strength, stiffness and better tribological properties have accelerated the development, diversification and use of metal-matrixcomposites (MMCs).

The objectives of the present investigation are development of processing method for carbon (C) fibre reinforced aluminium (Al) MMCs by liquid metal infiltration process.

Preforms of high modulus continuous C-fibre will be produced by advanced textile technologies like 3D-weaving in a near-net shape form based on the expertise of ITA der RWTH Aachen University, Germany and the squeeze infiltration processing of aluminium composite will be carried out in the CSIR-NIIST, India. The Indian Industrial partner, Fenfe Metallurgicals will develop and supply the suitable Al-alloy for the infiltration and industrial scale processing and evaluation of connecting rod and heat sink components. The German industrial partner, CIKONI GmbH will provide the conceptual and detailed part design based on the textile and infiltration process as well as the structural analysis. The developed near-net-shape component will be evaluated and on successful development the Industrial partners will manufacture the components for Indian and German OEMs.

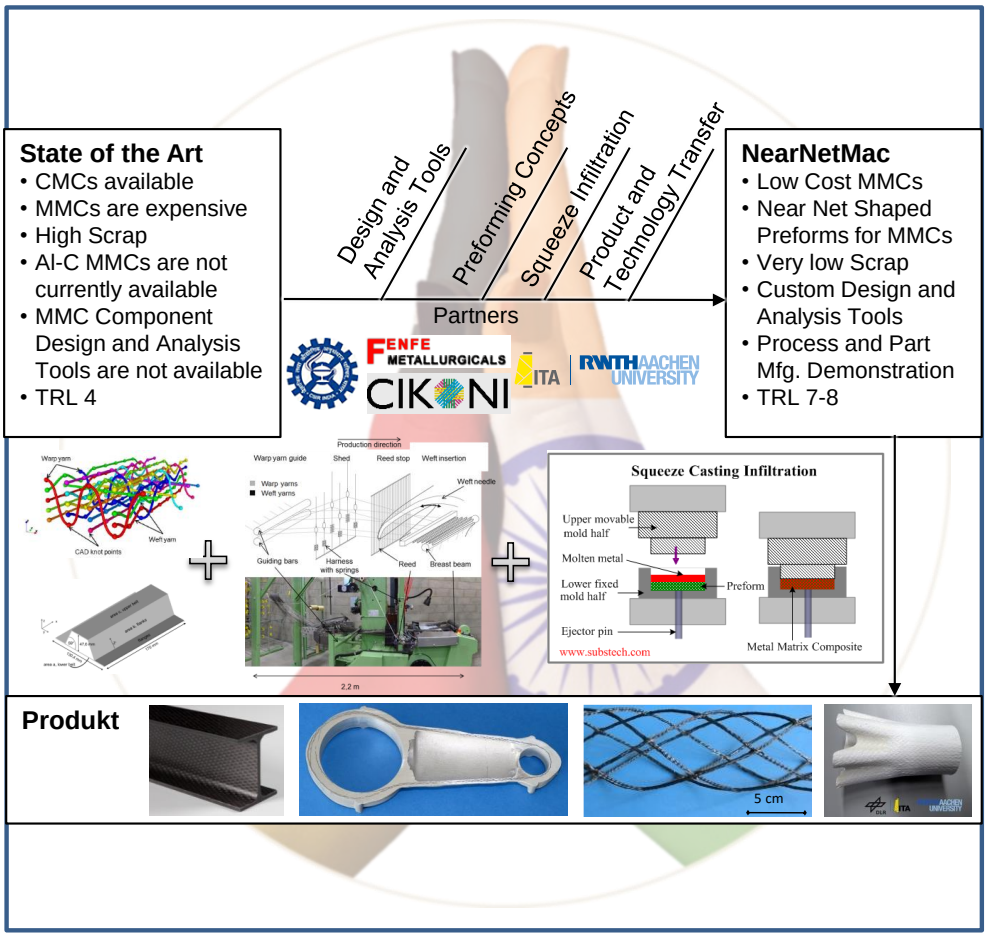

Fig. 1: Schematic of NearNetMac Project

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