

Project title: Development of fully and homogeneously consolidated fibre reinforced thermoplastic composite rods for use in automotive roof struts

Partner: Steinhuder Werkzeug- und Apparatebau Helmut Woelfl GmbH

Duration: 04/2017 – 09/2019

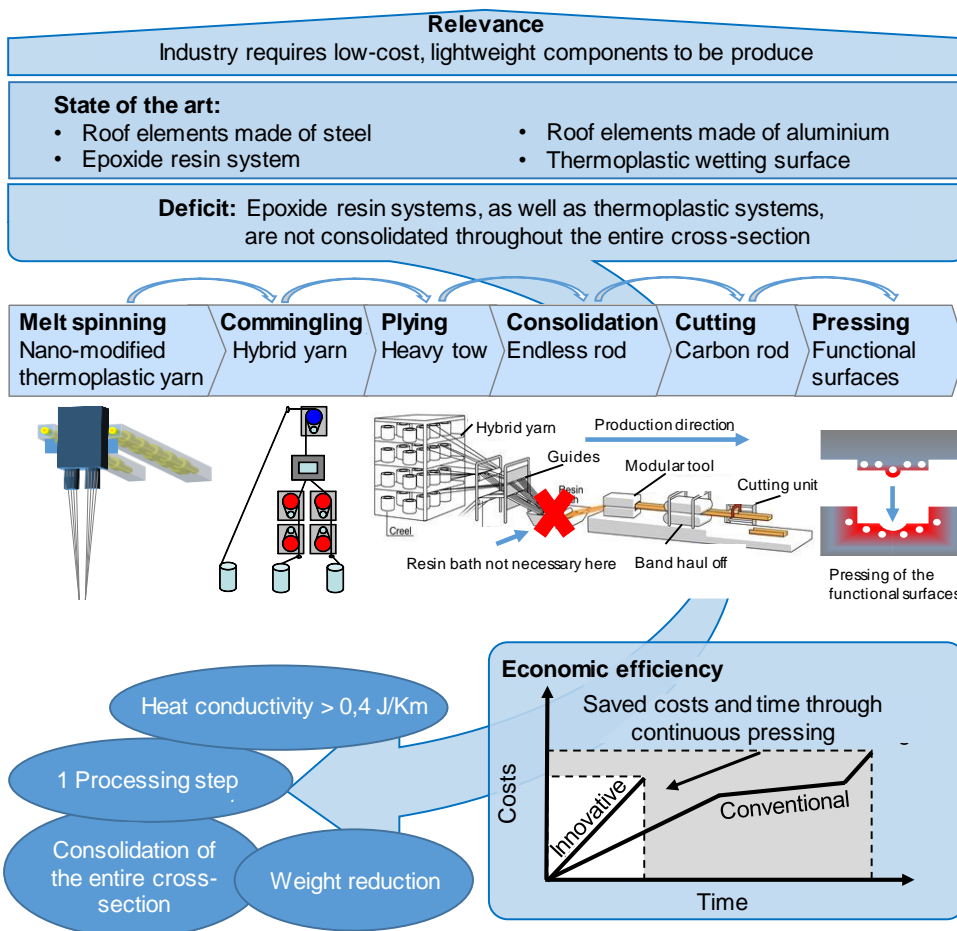
Funding agency: Central Innovation Program for Small and Medium Sized Enterprises (ZIM)

Univ.-Prof.
Prof. h.c. (Moscow State Univ.)
Dr.-Ing. Dipl.-Wirt. Ing.
Thomas Gries
 Institute Director

Jeanette Ortega
 Scientific Researcher

27.11.2018

Mission Statement



The aim is to develop a continuous manufacturing process for fibre reinforced thermoplastic composite rods consolidated over the entire cross section. The deficits described in the mission statement are addressed as follows: In order to obtain a homogeneous thermoplastic distribution over the entire cross-section, thermoplastic yarns and carbon fibres are combined

into a multifilament yarn by means of the air-entangling process. The thermoplastic fibres with a diameter of less than 30 µm are thus in direct contact with the carbon fibres. The deficit of the low thermal conductivity of thermoplastic materials is addressed by particle modification of the thermoplastic yarns. Preliminary tests have shown that with particle contents of 20 wt.-% boron nitride (BN) in polyamide 6 (PA 6) an 86 % increase of the thermal conductivity can be achieved. PA 6-compounds with 10 wt.-% BN led to a 48 % increase of the thermal conductivity and could be easily processed on a pilot fibre spinning plant.

Acknowledgements

We would like to thank the Federal Ministry for Economic Affairs and Energy for funding the research project as part of the Central Innovation Program for Small and Medium Sized Enterprises.

Contact

Jeanette Ortega, M.Sc.

Department Technical Fibres

Institut für Textiltechnik of RWTH Aachen University

Otto-Blumenthal-Straße 1, 52074 Aachen, Germany

Tel.: +49 (0) 241 80 221 10

Fax.: +49 (0) 241 80 224 22

E-Mail: jeanette.ortega@ita.rwth-aachen.de

<http://www.ita.rwth-aachen.de>