UNIVERSITÄT DES SAARLANDES

Naturwissenschaftlich-Technische Fakultät

Einladung

Der Dekan
der Naturwissenschaftlich-Technischen Fakultät der
Universität des Saarlandes

lädt ein zur öffentlichen Antrittsvorlesung
gemäß § 15 der Habilitationsordnung von

Dr.-Ing. Shiqi Fang

zum Thema

“Special Machining Processes – Techniques and Applications”

am 27. Oktober 2025 um 13:00 Uhr

Präsenz: Gebäude C9 3 (Graduate Center)
via MS Teams: https://t1p.de/hmv05

VITA

Dr. Fang has contributed to the functionalization of hard materials for precision machining. He holds magna cum laude doctorate from Saarland University and the Universitat Politècnica de Catalunya–BarcelonaTech, and his research advances the development of structured cemented carbide tools.

He leads interdisciplinary projects at the intersection of Production Engineering and Materials Engineering in an international context and has secured research funding from DAAD, DFG, the Alexander von Humboldt Foundation, and the Marie Curie Actions program. Supported by a Humboldt fellowship, he undertook a research stay of nearly two years at Rutgers, the State University of New Jersey. He is actively engaged in teaching and mentorship, having supervised both international and national students at the bachelor's and master's levels across multiple programs.

He has published his work, both independently and collaboratively, in peer-reviewed journals, including the CIRP Journal of Manufacturing Science and Technology. He has presented his research at international conferences and has been invited to chair sessions at SME NAMRC and ASME MSEC. His contributions have been recognized with distinctions such as the Best Poster Award at WorldPM, as well as multiple travel awards from DAAD and NSF.

This inaugural lecture concludes Dr Shiqi Fang's habilitation process.

ABSTRACT

This lecture focuses on special machining processes, a core component of the mandatory Manufacturing Technologies course for undergraduate students. Manufacturing is dedicated to transforming raw materials into finished products through various technological processes. Special machining processes occupy a unique position within this field, as they remove material using electrical, chemical, or thermal energy rather than conventional mechanical cutting. These methods are particularly suitable for hard or difficult-to-machine materials, such as cemented carbides and titanium- or nickel-based alloys.

The first part of the lecture introduces the fundamentals, including definitions, characteristics, and mechanisms of some key special machining processes, such as Electrical Discharge Machining (EDM), Electrochemical Machining (ECM), and Laser Machining. The second part focuses on their practical applications, highlighting high-precision processing of cemented carbides. The lecture concludes with a comparative analysis of the advantages and limitations of these processes, drawing on both research findings and practical experience.