

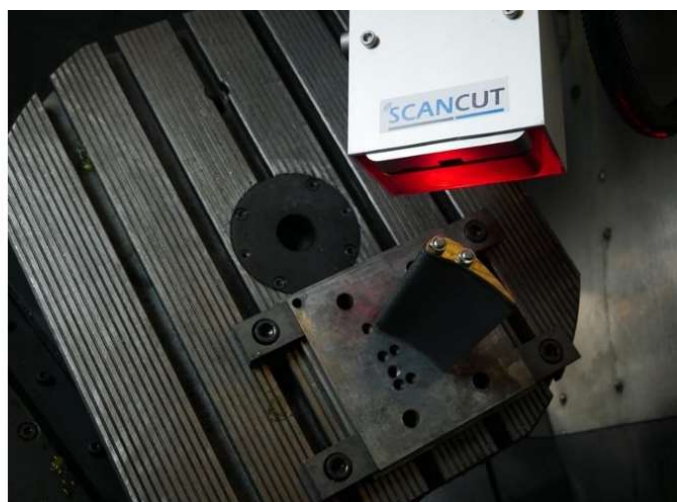
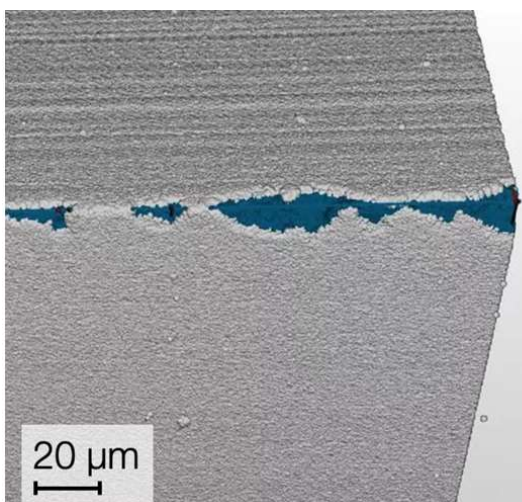
Die THA forscht in verschiedenen Bereichen zu CMC und CFK.
// The THA conducts research into CMC and CFRP in various areas.

The Composite Process Technology department, led by Prof. Dr. Ing. Ralf Goller is part of the HSA_comp research group which comprises several teams investigating composites in mechanical engineering. Prof. Dr.-Ing. Ralf Goller and his team are primarily focused on the process and technology development of new materials such as CFRP and CMC with a strong emphasis on practical applications. This involves optimizing machining processes and developing and testing new cutting-edge technologies. The team's particular expertise lies in the 5-axis finishing of ceramics and CMC, with a focus on improving efficiency and quality while considering sustainability. Overall, the Composite Process Technology department is at the forefront of research in this field, developing new materials and methods

that promise to advance the state of the art in composite processing. Core fields of research:

- Machining of CMCs and composite materials
- Ultrasonic-assisted milling and grinding
- 3D sensor technology, inline or offline
- Surface analysis
- Applied AI methods in machining

In the field of machining process optimization ultrasonic-assisted milling and grinding, as well as inline inspection using white light interferometer (WLI) are of particular interest to the department. Inline inspection in particular enables efficient quality assurance and adaptive machining. HSA_comp, in partnership with industrial collaborators, is working



on the SCAN CUT project, which seeks to revolutionize the field of 3D inspection of CMC surfaces. The project is developing a new principle that enables "in situ" inspection during the finishing process. A key component of this approach involves integrating WLI technology into a machine tool for the first time. The ultimate objective is to achieve automatic defect detection, which can be correlated with process parameters to facilitate an adaptive process strategy that minimizes errors in machining. This approach also combines finishing and quality control into a single step, eliminating the need for re-clamping the workpiece during re-working. This result is significant time and cost savings, making the SCANCUT project a game changer in the field of machining.

Component edge with automatically detected edge breakout @ HSA_comp

HSA_comp's research and development strategy emphasizes practical and application-oriented approaches that enable the team to effectively collaborate with industrial partners and carry out contract research projects. The Composite Process Technology department is well-suited for partnerships with medium-sized companies to implement their innovations due to its short communication and collaboration channels. The bachelor's, master's, and PhD theses on composite technologies offered by HSA_comp serve as a solid foundation for aspiring engineers

looking to enter in-demand fields. Additionally, the innovative topics and research projects undertaken by HSA_comp increase the attractiveness of studying at the faculty. Overall, HSA_comp's focus on cutting-edge research and real-world solutions makes it an ideal partner for those seeking to benefit from the latest advances in composite process technology.