

EDITORIAL

Walter Krenkel – CMC-pioneer and dedicated expert on ceramics

Nico Langhof 

Professor Walter Krenkel is a worldwide known specialist for Ceramic Matrix Composites (CMC), the Liquid Silicon Infiltration (LSI) process and the invention of the C/C-SiC ceramic brake disc.

He was born in 1955 in Bad Cannstatt, a famous part of the well-known city of Stuttgart in Germany. After school, he decided to study aerospace engineering in 1976 at the University of Stuttgart where he got his diploma in 1984. Immediately after finishing his diploma, he started his career as a research assistant in the Institute of Structures and Design at the German Aerospace Centre (DLR) in Stuttgart. Since 1990 he worked on the commercial application of C/C-SiC materials that was used for the space application so far. In 1992, within a research project he and his colleagues from DLR created as a spin-off from thermal protection materials for re-entry space vehicles, a ceramic brake disc, based on C/C-SiC for railway vehicles.

After gaining valuable experiences in research and development projects, in 1996, he started to work as a leader of the Ceramic Composites and Structures Group in the same department. His continuous work on ceramic brakes led to the invention of the ceramic brake discs for passengers' cars, together with several industrial partners between 1997 and 2001. His increasing know-how about ceramic matrix composites in general and about ceramic brakes in particular make him the perfect choice as the head of the Centre of Excellence about Ceramic Lightweight Structures and High Temperature Applications in 1999. One year later, he finished his PhD on the subject of cost-efficient manufacturing of CMC, based on the LSI-process in the Faculty of Aerospace Engineering of the University of Stuttgart.

Due to his initiative, the LSI-process was successfully transferred to the industry and was developed to the most established high temperature-process to manufacture CMC at reasonable costs.

On the basis of his professional performance, it was offered to him to work as a Professor at the University of Bayreuth at the Chair of Ceramic Materials Engineering (CME) in 2004. He continued his engagement in several ceramic societies, as the Dean of the Faculty of Engineering Science in the University of Bayreuth during 2015–2017 and as a Guest Professor in the Southeast University in Nanjing and the Central South University of Changsha (China). During his career, he wrote more than 200 articles and 35 patents. In Bayreuth he led the Chair of Ceramic Material Engineering to the top in the university, regarding the funding from third parties.

His engagement constantly influenced the whole ceramic community. He was responsible for organizing numerous national and international conferences. In 2010, he brought the HT-CMC 7 conference to Bayreuth and managed this scientific premium event in very remarkable fashion. Due to his constant work as a scientist and a professor in Bayreuth, he gained a huge knowledge in almost all fields of ceramics, with focus in CMC, polymer derived ceramics (PDC), the evaluation of structural and functional ceramics and the tribological properties of high-performance ceramic friction materials.

His worldwide reputation is unique and his experiences in the field of ceramics influence the research and development activities in the whole ceramic community.

After winning prizes from all significant ceramic societies worldwide (German, American and European), for example, the Bridge Building Award from the ACERS and the Seger Medal of the DKG, he is enjoying the well-deserved retirement since April 2021.

His contributions to the field of CMC and ceramics in general are fundamental and lead the way to the future of this material class. The ideas of Professor Krenkel will give his former chair and the ceramic community the best chances to enhance the impact of ceramics and to find new

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applications within the megatrends and challenges in the 21th century.

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