



THE ITALIAN INSTITUTE

RESEARCH AND TEACHING AT ITM

Under the guidance of Prof. Peter Eberhard, Prof. Jörg Fehr, Prof. Michael Hanss, and Dr. Pascal Ziegler, the Institute of Engineering and Computational Mechanics (ITM) has emerged as a hub of innovation in mechanical engineering, fostering a dynamic environment where interdisciplinary research and cross-cultural collaborations flourish.



MAP of our Italian Guests

Design: WeiserDesign



From left to right: Pascal Ziegler, Michael Hanss, Peter Eberhard, Manuel Vierendeel, Jörg Fehr, Norman Stricker.



From left to right: Jörg Fehr, Francesco Defronzo, Michael Hanss.



Pascal Ziegler (on the left) and Pierfrancesco Cillo (on the right).

The skilled and diverse team directs its efforts towards research and education in modeling, simulation, and analysis of complex dynamic systems. Key areas of expertise include robotics with advanced swarm control systems, cutting-edge simulations, and vehicle dynamics, particularly in the realm of safety and maglev technologies. The institute also explores the fascinating intersection of engineering with the arts, combining technology with music and paintings.

Prof. Michael Hanss serves as a vital bridge between Italian culture and German academia. Fluent in Italian and deeply passionate about Italy's rich heritage, he has significantly strengthened the ITM's collaborations with Italian academic institutions. As Erasmus coordinator, he is committed to making Italian students feel welcome at the ITM, facilitating their smooth transition into the German academic world and culture. In his research on Uncertainty Quantification (UQ), Prof. Hanss has established strong collaborations with Prof. Alba Sofi from the Università degli Studi Mediterranea di Reggio Calabria, having co-organized numerous minisymposia at international conferences to strengthen their academic partnership. Prof. Hanss also oversees the long-standing student exchange program with Prof. Annalisa Fregolent and Prof. Aldo Sestieri from Sapienza Università di Roma and serves as a Board Member of the Doctoral School at Università degli Studi Niccolò Cusano in Rome, chaired by Prof. Oliviero Giannini.

Prof. Jörg Fehr has formed strong international academic partnerships, notably with Prof. Alessandro Scattina from Politecnico di Torino. Their partnership is an example of the fruitful exchange of ideas, particularly by the joint supervision of master's theses on cutting-edge topics such as autonomous driving and human

modeling. Currently, one of their students, Francesco Defronzo, is conducting groundbreaking research on crash-absorbing auxetic materials – advanced structures designed to improve safety in automotive applications. His work, recognized by the InnoRegio Challenge, is advancing in collaboration with SAS-TEC in Markgröningen, bridging the gap between theoretical research and practical application.

At the ITM, research is often interdisciplinary, as demonstrated by Italian PhD student Pierfrancesco Cillo. During his master's thesis – a collaboration between ITM and Politecnico di Milano's Musical Acoustics Lab, led by Prof. Fabio Antonacci – he explored how materials and geometry influence the acoustics of classical guitars. Now, pursuing his doctoral studies, he applies advanced methods, such as surrogate modelling, UQ, and experimental modal analysis, to refine musical instrument design.

His supervisor Dr. Pascal Ziegler plays a crucial role in musical acoustics research. As a skilled guitarist and passionate engineer, Dr. Ziegler combines his deep technical expertise with a genuine love for music. Their engaging "guitar talks", filled with lively discussions and fresh ideas, reflect a passion worthy of the Italian lutherie tradition to drive innovation in musical acoustics.

These partnerships deepen the ITM's international collaborations, blending cultural appreciation with academic excellence.

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