

Awards for Application Software Development of Metamaterials and Adaptive Model Order Reduction

The foundation Stiftung Maurer Söhne awarded two Students of the Technical University Munich

Munich. The foundation „Stiftung Maurer Söhne“ awarded the BSc thesis of Raphael Rupprecht and the MSc thesis of Marcel Warzecha in the fields of structural dynamics and technical mechanics in summer 2025. The foundation Stiftung Maurer Söhne awards every year the most outstanding PhD, MSc and BSc theses in the field of technical dynamics.

In 2025 two excellent R&D works were awarded the prize foundation Stiftung Maurer Söhne of total 2,000 €.

Raphael Rupprecht received the prize money of 1,000€ for his BSc thesis „Visualization of Dispersion Characteristics of One-Dimensional Mass Spring Systems by an Interactive Web-Application“. The main work of his thesis was the development of an application software describing the dispersion characteristics of metamaterials with band gaps. The BSc thesis was supervised by Prof. Dr. Eng. Gerhard Müller and Dr. Eng. Francesca Taddei of the Technical University of Munich (TUM).

Marcel Warzecha received the same prize money for his MSc thesis „An Adaptive Sampling Strategy for Gradient-Based Structural Optimization of Parametric Dynamical Systems Using Model Order Reduction“. In his thesis, he developed a model order reduction algorithm that does not minimize the approximation error in a global sense but within the relevant system regions. This MSc thesis was also supervised by Prof. Dr. Eng. Müller and Dr. Eng. Taddei.

The prize winners were selected by the prize committee of the Department Civil and Environmental Engineering (CEE) of TUM School of Engineering and Design. The prizes were handed over on July 11 on the CEE Department Day.

Universities are obliged to focus on project-related research due to their limited budget. The industry commonly aims at product development. In contrast, basic research shall be free of development goals and independent of potential economic benefits. Therefore, the foundation Stiftung Maurer Söhne aims at supporting R&D projects at the interface of civil and mechanical engineering.

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Prize winner Raphael Rupprecht (middle), Prof. Dr. Eng. Klaus Sedlbauer (left, TUM) and Dr. Eng. Christiane Butz (Foundation).

Foto: TUM



Information on Stiftung Maurer Söhne

In January 2007, the company members of Maurer Söhne GmbH & Co. KG Messrs. Hans and Peter Beutler and Ms. Ursula Grill, established the charitable foundation Stiftung Maurer Söhne based in Munich. The Foundation Maurer Söhne aims at supporting R&D projects at Technical Universities and independent Research Centres in the fields of Civil and Mechanical Engineering.

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