



Technische  
Universität  
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# Machine Learning & Computational Mechanics: The Natural Next Step

Lecture of

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Okerhochhaus, Pockelsstraße 3,  
Seminarraum EG

Historically, the discipline of mechanics was dominated for most of the time by experimental methods. It was only with the advent of the modern era around 500 years ago that theoretical methods grounded mainly on analysis and linear algebra gained more and more importance in mechanical research. Over the last 50 years, these theoretical methods transformed more and more into computational methods, driven mainly by the rapid pace of Moore's law. The availability of computational resources is, however, still increasing substantially. It is a key question, which further evolution of the methods of mechanical research this development will trigger.

This talk advocates the hypothesis that the continued increase of the availability of computational resources will trigger over the next decades a fusion of computational mechanics and machine learning. We underpin this hypothesis by showing examples of our most recent research how this fusion can be transformative both in the area of materials research and general computational mechanics.