

Prof. Dr.-Ing. Wolfgang A. Wall

Titel : „Novel physics-based, data-enhanced computational modeling towards a paradigm shift in health care“

Tag u. Uhrzeit: Mittwoch, 08.04.2026, 14.30 Uhr

Ort: Aula, TU Graz, Rechbauerstraße 12/1, 8010 Graz

Short CV: 1991 - M.Sc. degree from University of Innsbruck

1999 - Ph.D. degree from University of Stuttgart

1997 - 1999 Research assistant and team leader, Institute for Structural Mechanics, University of Stuttgart

1999 – 2003 Vice head of Institute for Structural Mechanics, University of Stuttgart

2003 – Full Professor (Ordinarius) for Computational Mechanics, Founding Director of Institute for Computational Mechanics, Technical University of Munich

2010 - 2012 Founding Director of Munich School of Engineering

2011 Co-Founder of company AdCo EngineeringGW GmbH

2012 Founding Director Center for Computational Biomedical Engineering, CBME

2019 Co-Founder of company Ebenbuild GmbH

Research interests of Wolfgang A. Wall and his group can be described as “application motivated fundamental research” in a broad range of areas in computational mechanics, with applications spanning all fields of engineering and the applied sciences.

Abstract:

Main challenges towards progress in health care are not only due to the complexity of the system, but also due to the respective environments and constraints that are accompanied with many of the important vital questions. Certain standard approaches from the Natural and Engineering Sciences were, and still are, not available in the medical field. And while some people seem to think that this can all simply be resolved by AI, this assumption should be strongly questioned in our point of view. While we have obviously a lot – and rapidly growing amount – of data, most crucial medical questions are not "big data" but so called "small data" problems. In addition, some important information is simply not yet, and some will never be, included in the data.

We propose a paradigm shift in health care via a novel type of computational modeling. It is our strong belief, that such novel and advanced physics-based, data-enhanced, individualized computational models will become very powerful tools for experts in both medical research and clinical applications.

In this talk we will first sketch the overall idea of such an approach and then show some essential models and methods that we have developed in recent years for some important example applications.