



Professor Dennis Kochmann

«Doing research means understanding what nobody understood before, developing methods that nobody applied before, and changing the world just a tiny bit each day in ways never tried before. Isn't that exciting?»

Mechanics and Materials

Institute of Mechanical Systems

Through theory, simulations and experiments, we investigate how material properties emerge from the material architecture and mechanisms at smaller scales, starting on the atomic scale all the way up to engineering applications. We also develop new materials systems whose properties cannot be found in nature but are of great importance, e.g. lightweight materials that are stiff and strong, materials that absorb vibrations or guide signals.

Focus

- Developing new models and computational techniques to bridge across scales
- Fabricating and testing engineered (meta)materials with controllable properties
- Understanding and exploiting instabilities across scales

Tools and methods

- Mathematics, physics, atomistics, finite elements
- Numerical techniques, code development
- Experimental material characterization
- Fabrication and 3D printing

Further details online:

www.mm.ethz.ch

