

SOLID-SOLID PHASE TRANSFORMATIONS AT VARIOUS LENGTH- SCALES

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ABSTRACT

We encourage researchers investigating the various aspects of solid to solid phase transformations, both diffusive and displacive, to contribute to this minisymposium. A special focus will be put on the mechanical consequences of phase transformations, including but not limited to transformation induced plasticity, shape memory effect etc. Another interesting aspect within the scope of this minisymposium is the issue of transformation kinetic laws for the various types of phase changes, including time and temperature dependent evolution laws. The question as to how mechanical quantities such as stresses or elastic-plastic deformation inhibit or promote transformation will also be of interest. As these phenomena may have a significant impact on industrially relevant processes, e.g. in forming or in quenching processes, the minisymposium shall cover also applied engineering aspects alongside with studies on the fundamental physics and thermodynamics of solid-solid phase transformations. We invite reports on research activities at all scale levels possibly also exploiting the bridges between them. Aside from analytical considerations typical research tools in the area of phase transformations comprise numerical analyses such as phase field methods or the finite element method as well as experimental characterization techniques. Moreover, alternative approaches will be more than welcome.

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