

Ideas on Handling of ODE Systems in the Context of Two Computational Domains

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In this talk we present some ideas on supporting the handling of dynamical systems that are governed by a set of ODEs including additional parameters. These parameters may either originate from a domain splitting ansatz or from a set of coupling equations which interlink two computational domains.

The first case may be motivated by the requirement to treat local and (as the case may be) temporary phenomena with particular care and therefore to split the original computational domain. The second case may result from the semi-implicit coupling of two codes where an iteration is required to determine consistent values for the coupling parameters.

The idea is to quantify the influence of the additional parameters on the given ODE system and to exploit that knowledge to save computations.