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Application of FROSch - the Fast and Robust Overlapping Schwarz Preconditioner framework - to Chemo-Mechanics

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The Fast and Robust Overlapping Schwarz (FROSch) framework of the Trilinos software library [1] contains a parallel implementation of the GDSW overlapping Schwarz domain decomposition preconditioner with an energy minimizing coarse space [3]. The framework includes a multi-level extension for extended parallel scalability.
It has already been applied to complex multi-physics applications such as fluid structure interactions [4] and coupled land ice problems [5]. In this talk we will discuss the application of the FROSch framework to the coupling of mass diffusion and the deformation of solids in a minimization formulation. Results of an algebraic application of the preconditioner within an integration to the deal.II software library [2] are presented.

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