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Mathematical Issues in Multiphysics Couplings

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Multiphysics couplings can happen in different ways. One may have different physical processes (e.g. flow, transport, reactions) occurring within the same physical domain, or one may have different physical regimes (e.g., surface/subsurface environments, fluid/structure interactions) interacting through interfaces. We will discuss both of these types of multiphysics couplings in this presentation. Of particular interest will be the development of interpolation/projection algorithms for projecting physical quantities from one space/time grid to another, and the investigation of mortar and mortar-free methods for coupling multiple physical domains.