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*Space-Time methods for parabolic evolution problems*

In this talk, we will present a space-time finite element method, and a new time-multipatch discontinuous Galerkin Isogeometric Analysis technology for solving parabolic initial-boundary problems. We prove coercivity of the discrete problems with respect to a suitably chosen norm that together with boundedness, consistency and approximation results yields a priori discretization error estimates in this norm. Furthermore, we will discuss efficient parallel multigrid solution technologies for solving the resulting algebraic system. At the end, numerical examples will be shown that confirm the theoretical results.