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A least-squares space-time approach for parabolic equations

Tuesday, August 13, 2024 5:00 PM (30 minutes)

We consider a least squares formulation of a linear parabolic equation in spaces with natural regularity. As a consequence the formulation contains the Riesz isomorphism.
The discrete approach uses space-time finite elements and a suitable approximation of the Riesz isomorphism. Using finite elements that are separable with respect to space and time
the final fully discrete representation has the form of a generalized Lyapunov equation. The numerical solution of this system requires a taylored approach. Finally we discuss the use of reduced basis methods for our problem.

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