

# High-Order Spline Upwind for Space-Time Isogeometric Analysis

Interviene

Dott. Ing. Paolo Tesini

Università di Pavia e Milano-Bicocca

Introduce

Dott. Francesco Ballarin

## Abstract

We propose an isogeometric space-time method for the heat equation, with smooth splines approximation in both space and time. A stabilizing term, based on a linear combination of high-order artificial diffusions, is added to the Galerkin formulation. This term is designed in order to make the linear system triangular with respect to time, extending the classical idea of upwinding. In order to keep optimal accuracy, the stabilization is weighted and fully activated locally, where sharp layers are detected, in a nonlinear way. We perform numerical tests that assess the stable and accurate behavior of the method.

## Seminario

**Mercoledì 26 aprile 2023**

**Aula 8, ore 15.00**

Università Cattolica del Sacro Cuore

Via Garzetta 48, Brescia



UNIVERSITÀ  
CATTOLICA  
del Sacro Cuore