UNIVERSITÀ DI TRENTO
Dipartimento di Matematica

PhD in Mathematics

"Doc in Progress" and #iorestoacasa are pleased to introduce you to

Ludovico Bruni Bruno

University of Trento
PhD in Mathematics

Geometrical degrees of freedom for Whitney elements

We consider *weights* as degrees of freedom for high order Whitney finite elements. They are integrals of Whitney k-forms over k-simplices. Their *unisolvence* is numerically proven by verifying that the associated *generalised Vandermonde matrix* is invertible. They carry natural generalisations of several features of nodal interpolation and offer a great flexibility on the supports. We present results stating the non-optimality of the weights supported on k-simplices with vertices located at uniformly distributed points and we propose a technique to define k-simplices with vertices at well-known non-uniform distributions of nodes that are optimal for multivariate interpolation and computable by an explicit algorithm. Numerical results for $k > 0$ in $\mathbf{R}^2$ and $\mathbf{R}^3$ are presented and motivate this choice.

Thursday, March 17– at 16:30 CET

The seminar will be held both in presence in Seminar Room "-1" (Department of Mathematics) and online via Zoom.

To join the event, please contact docinprogress.unitn@gmail.com using an institutional e-mail address for both reserving a sit in the seminar room or obtaining login credentials.