

$$\text{div} \frac{Du}{\sqrt{1+|Du|^2}} = 0$$

$$\sum_{h,k} \frac{\partial x_h}{\partial x_k} \Gamma_{h,k} = 0$$

$$\forall f \exists g \forall a \in \text{Dom } f \quad (g(a) = \{g(x) \mid x \in f(a) \cap A\} \cup (f(a) \setminus A))$$

# Colloquio De Giorgi

24 May  
2022  
3:00 pm

Elaborazione a cura dell'Ufficio di Comunicazione SNS

**ANDREW WATHEN**

University of Oxford

***Numerical solutions methods for problems of PDE-constrained optimisation***

Aula Dini  
Palazzo del Castelletto  
Via del Castelletto  
Pisa

**Abstract:** Since the advent of computers there has been interest in numerical methods for solving partial differential equations (PDE) problems--both methods of approximation and numerical linear algebra for the resulting sets of equations which are usually of very large dimension. Sometimes it is the solutions themselves that are of interest, but there is a significant class of problems where there is a design optimization criterion with physical constraints that are expressed in terms of PDEs; it is always the motion of fluids described by flow equations which provide the principal constraints when an engineer designs an aerodynamic structure with minimal drag and acceptable lift for example. In this talk I will consider numerical methods for such optimization problems with PDE constraints, in particular methods of iterative numerical linear algebra that render feasible the solution of such problems on advanced computers.

Web site: <http://www.crm.sns.it/course/6307/>

The event will take place in person.

Please note that for organizational purposes, **registration** is mandatory.

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