

Charles University  
Faculty of Mathematics and Physics

Cordially invites you to the

## 20th Jubilee Jarník's Lecture

### Symmetry of Solutions to PDEs in Mathematical Physics

Given by

**Prof. Andrea Cianchi**

(University of Florence)

**On Wednesday, October 6, 2021  
at 2 p.m.**

In Jarník's auditorium (M1),  
MFF UK  
Ke Karlovu 3, Prague 2

The lecture will be also streamed at:

<https://cesnet.zoom.us/j/99333093279>

**Abstract:** Partial Differential Equations enter mathematical models for a broad variety of physical phenomena. Under certain circumstances, the solutions to these equations enjoy special symmetry properties. This can be a consequence, for instance, of the fact that the solutions in question minimize or maximize some physically relevant quantity, or of the inheritance of some symmetry property of the domain and of the boundary data, or still of imposing additional boundary data besides the natural ones. Problems of the latter kind are usually called overdetermined boundary value problems for PDEs, and will be focused in my talk. I shall survey a few classical results as well as some recent developments. In particular, I shall discuss overdetermined problems for anisotropic elliptic equations, called of Finsler or Wulff type, whose solutions display a nonstandard symmetry dictated by the anisotropy of the operator.

**Andrea Cianchi** is a professor at the University of Florence (Italy) and Guest Professor at Charles University in Prague. His research centers on elliptic partial differential equations, Sobolev spaces and related geometric inequalities. He is the author of about 120 research papers on these topics. He is the recipient of the "Gaetano Fichera Prize" 2014 awarded by the Italian Mathematical Union, and of the "Luigi e Wanda Amerio Prize" 2018 awarded by the Istituto Lombardo delle Scienze e delle Lettere. He was also assigned the Commemorative Medal of the Faculty of Mathematics and Physics of Charles University. Andrea Cianchi was a plenary speaker at the 19-th Congress of the Italian Mathematical Union in 2011, and at the National Institute of High Mathematics (INdAM) Day in 2018. He is a member of the Editorial Board of international research journals, including *Annali di Matematica Pura e Applicata*, *Journal of Mathematical Analysis and Applications*, *Applicable Analysis*.