

Bahçeşehir University, Istanbul, Türkiye  
Analysis & PDE Center, Ghent University, Ghent, Belgium  
Institute Mathematics & Math. Modeling, Almaty, Kazakhstan

## “Analysis and Applied Mathematics”

Weekly Online Seminar

### Seminar leaders:

Prof. Allaberen Ashyralyev (BAU, Istanbul),  
Prof. Michael Ruzhansky (UGent, Ghent),  
Prof. Makhmud Sadybekov (IMMM, Almaty)

Date: **Tuesday, December 9, 2025**

Time: 15.00-16.00 (Istanbul) = 13.00-14.00 (Ghent) = 17.00-18.00 (Almaty)

Zoom link: <https://us02web.zoom.us/j/6678270445?pwd=SFNmQUIvT0tRaHlDa-VYrN3I5bzJVQT09>, **Conference ID:** 667 827 0445, **Access code:** 1

### Speaker:

**Prof. Dr. Giuseppe Di Fazio**

*University of Catania, Italy*

Title: **Higher Hölder Regularity for Degenerate Elliptic PDEs with Data in Morrey Space**

Abstract: We are investigating  $C^{1,\alpha}$  regularity for a class non linear degenerate elliptic equations that includes the  $p$ -Laplace operator. The novelty here is in the integrability assumptions we make about the lower order coefficients. In particular we allow data to be only  $L^1$  function plus a growth condition for their integral on balls.

The technique relies on the powerful Fefferman - Phong inequality and a perturbation technique widely used in the literature.

### Biography:

**Giuseppe Di Fazio** was born in Catania in 1963. He obtained his degree in Mathematics (University of Catania) in 1986 with 110/110 cum laude and his PhD in 1992 in Mathematics - PDEs under the supervision of Professor Filippo Chiarenza (University of Catania). He worked as an Assistant Professor from 1992, Associate Professor from 1998, and Full Professor from 2007 at the University of Catania. He was Visiting Professor at Temple University (Philadelphia PA), **MSRI** (Berkeley CA), Università Autonoma de Madrid, Tokyo Metropolitan University, Tokyo University of Sciences, Chuo University in Tokyo, University of Kyoto, **KAUST** (Saudi Arabia), Bandung Institute of Technology **ITB** (Indonesia), University of Coimbra (Portugal).

Prof. Giuseppe Di Fazio's research interests are about regularity problems for elliptic PDEs and boundedness properties of integral operators acting on Morrey spaces. He is an author of two books:

1. *Yoshihiro Sawano, Giuseppe Di Fazio, Denny Ivanal Hakim, Morrey Spaces : Introduction and Applications to Integral Operators and PDE's, Volume I, Taylor & Francis (2020)*
2. *Yoshihiro Sawano, Giuseppe Di Fazio, Denny Ivanal Hakim, Morrey Spaces : Introduction and Applications to Integral Operators and PDE's, Volume II, Taylor & Francis (2020)*