Barcelona Analysis Seminar **2023–2024**

Date: December 21, 2023
Time: 15:00 CET
Room: iA (Universitat de Barcelona)

Geometric rigidity on Sobolev spaces with variable exponent and applications

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Liouville's rigidity result states that smooth maps are necessarily affine if their gradient is a rotation everywhere. In 2002 Friesecke, James, and Müller proved a quantitative version of this result, by showing that the L^2-distance of the gradient of a Sobolev function from the group of rotations controls the L^2-distance of the gradient from a fixed rotation. Later, the result was generalized to general exponents p by Conti and Schweizer, and to the setting of mixed growth by Conti, Dolzmann, and Müller.

I will present the extension of those geometric rigidity results to the setting of variable exponents. As an application, I will show that the mimimizers of nonlinear models, with sub-quadratic variable growth far from the energy well, converge strongly in the variable exponent energy space towards the mimimizers of linearized elasticity. This is a joint work with S. Almi, M. Friedrich, and F. Solombrino.