NewSRG

New Directions in sub-Riemannian geometry

NewSRG is a 2-years project funded by the STARS Project of University of Padova, with P.I. Davide Barilari. The project is starting on March 15, 2022.

The project offers a Post-Doc position to join the team at the "Dipartimento di Matematica Tullio Levi-Civita" of University of Padova. https://www.math.unipd.it/~barilari/SRGPD.html

The main goal of the project is to investigate "New Directions in sub-Riemannian Geometry", especially those related with the following topics:

- curvature invariants of submanifolds of a sub-Riemannian manifold
- weak notions of curvature bounds valid for sub-Riemannian manifold
- geometric hypoelliptic PDEs such as heat and Shrödinger equations.

People interested in better knowing the NewSRG project may look at the bibliography below, freely available on my webpage: https://www.math.unipd.it/~barilari/

Some recent publications, related to the project, are [1--5].

A successful candidate needs to have a strong background in at least one of the following topics:

• Sub-Riemannian Geometry

• Geometric Control Theory

• Partial Differential Equations

The duration of the contract is 18 months. The tentative starting date is between September 1,2022 and October 1, 2022. The gross salary is 31.000 Euros per year.

If you are interested, send a CV and a motivation letter to davide.barilari@unipd.it

Bibliography:

[1] H. Bahouri - D. Barilari - I. Gallagher, *Strichartz estimates and Fourier restriction theorems on the Heisenberg group*, Journal of Fourier Analysis and Applications (2021)

[2] D. Barilari - M. Kohli, On sub-Riemannian geodesic curvature in dimension three, *Advances in Calculus of Variations* (2021)

[3] D. Barilari - L. Rizzi, *Bakry-Émery curvature and model spaces in sub-Riemannian geometry*, Mathematische Annalen (2020)

[4] D. Barilari - L. Rizzi, *Sub-Riemannian interpolation inequalities*, Inventiones Mathematicae (2019)

[5] D. Barilari – U. Boscain – D. Cannarsa, *On the induced geometry on surfaces in 3D contact sub-Riemannian manifolds,* ESAIM: Control, Optimisation and Calculus of Variations (2021)