

Microlocal Day #6

Imperial College London, UK

4 November 2016 (Friday)

Organisers

Julio Delgado
Michael Ruzhansky

(Imperial College London)

Conference Venue: **Room 140 (2-6pm)**, Huxley Building, Imperial College London

Address : [Department of Mathematics](#), Imperial College London, 180 Queen's Gate, London SW7 2AZ, United Kingdom

The **Microlocal Day** is an occasional event devoted to intensive series of lectures or talks on different aspects of the microlocal analysis and related topics. The program includes research lectures as well as survey lectures aimed at researchers and PhD students interested in the subject. All are welcome to attend.

Previous events: [Microlocal Day #1](#), [Microlocal Day #2](#), [Microlocal Day #3](#), [Microlocal Day #4](#), [Microlocal Day #5](#).

Speakers

- **Alessia Kogoj** (University of Salerno, *Italy*) **2 talks**
- **Binh-Khoi Nguyen** (Imperial College London, *UK*)
- **Durvudkhan Suragan** (Institute of Mathematics, *Kazakhstan*)

Schedule

Friday, 4 November, 2—6pm, [Imperial College London](#)

Room **140**

- **14:00-15:00 Alessia Kogoj** (University of Salerno, *Italy*) *Subelliptic Liouville theorems*
- **Coffee break**
- **15:30-16:00 Binh-Khoi Nguyen** (Imperial College London, *UK*) *Pseudo-differential operators on motion groups*
- **16:00-16:30 Durvudkhan Suragan** (Institute of Mathematics, *Kazakhstan*) *On horizontal functional inequalities on stratified groups*
- **16:30-17:30 Alessia Kogoj** (University of Salerno, *Italy*) *The Dirichlet problem for hypoelliptic evolution equations: Perron-Wiener solution and a cone-type criterion*

For further information please contact
Michael Ruzhansky at [this e-mail address](#)

SUGGESTION OF HOTELS IN THE AREA (EARL'S COURT STATION, 15 MINS WALK TO IMPERIAL COLLEGE)

[Merlyn Court Hotel](#)

[Maranton House Hotel](#)

[Barkston Gardens](#)

[City Hotel Kensington](#)

For other hotels see [here](#)

HOW TO GET TO THE [DEPARTMENT OF MATHEMATICS](#), IMPERIAL COLLEGE LONDON

Travel to the tube station **Gloucester Road** (District, Circle, and Piccadilly Lines).

When you exit the station, turn left along Gloucester Road, crossing Cromwell Road 50 meters from the exit.

After 4-5 minutes walk along Gloucester Road, turn right to Queen's Gate Terrace.

This is a short road leading directly to the entrance of the Huxley Building, at 180 Queen's Gate. We are on floor 6.

Abstracts

Alessia Kogoj (University of Salerno, *Italy*) *Subelliptic Liouville theorems*

Several Liouville-type theorems are presented, related to evolution equations on Lie Groups and to their stationary counterpart. Our results apply in particular to the heat operator on Carnot groups, to linearized Kolmogorov operators and to operators of Fokker-Planck-type like the Mumford operator. An application to the uniqueness for the Cauchy problem is also shown. The results were obtained in collaboration with A. Bonfiglioli, E. Lanconelli, Y. Pinchover and S. Polidoro.

Alessia Kogoj (University of Salerno, *Italy*) *The Dirichlet problem for hypoelliptic evolution equations: Perron-Wiener solution and a cone-type criterion*

We show how to apply Harmonic Spaces Potential Theory in studying Dirichlet problem for a general class of evolution hypoelliptic PDEs of second order. We construct Perron-Wiener solution and we show a new regularity criterion for the boundary points. Our criterion extends and generalizes the classical parabolic-cone criterion for the Heat equation due to Effros and Kazdan. The class of operator to which our results apply contains the Heat operators on stratified Lie groups and the prototypes of the Kolmogorov operators.

Binh-Khoi Nguyen (Imperial College London, UK) *Pseudo-differential operators on motion groups*

In this talk the global pseudo-differential calculus will be described in the setting of the motion groups. The talk constitutes an outline of the speaker's PhD thesis.

Durvudkhan Suragan (Institute of Mathematics, Kazakhstan) *On horizontal functional inequalities on stratified groups*

In this talk we present a version of horizontal weighted Hardy-Rellich type and Caffarelli-Kohn-Nirenberg type inequalities on stratified groups and study some of their consequences. Our results reflect on many results previously known in special cases. Moreover, a new simple proof of the Badiello-Tarantello conjecture on the best constant of a Hardy type inequality is provided. We also show a family of Poincaré inequalities as well as inequalities involving the weighted and unweighted p -sub-Laplacians.

Previously organised: [Microlocal Day #1](#), [#2](#), [#3](#), [#4](#), [#5](#)