

Séminaire de mathématiques et leurs applications

13 juin 2019

à 10h :

Elena Zhizhina
IITP RAS, Moscow

Title: Homogenization of biased convolution type operators

Abstract: I will tell about results from our recent work with A. Piatnitski, where we studied homogenization of the parabolic problem for integral convolution type operators with a non-symmetric jump kernel in a periodic elliptic medium.

It was shown that the homogenization result holds in moving coordinates. We found the corresponding effective velocity and proved that the limit operator is a second order parabolic operator with constant coefficients.

We also considered the behaviour of the effective velocity in the case of small antisymmetric perturbations of a symmetric kernel, in particular we showed that the Einstein relation holds for the studied periodic environment.

à 11h15 :

Andrey Piatnitski

UiT - The Arctic University of Norway, Narvik, Norway

Title: Homogenization of fractional diffusion in periodic and random media

Abstract: The talk will focus on homogenization problems for non-local fractional diffusion operators with rapidly oscillating periodic or random statistically homogeneous coefficients. It will be shown that in the symmetric case under natural uniform ellipticity assumptions on the coefficients the homogenization result holds. In the non-symmetric case an additional assumption on the regularity of the coefficients is required.