

# Homogenization in PDE and Stochastic Processes

**Date:** August/19/2024 (Mon) – August/21/2024 (Wed)

**Place:** Room 123, Graduate School of Mathematical Sciences, The University of Tokyo 3-8-1 Komaba, Meguro, Tokyo, 153-8914, Japan

## — Program —

### August/19 (Mon)

- 10:00 – 10:45      Stefan Neukamm (TU Dresden)  
Quantitative homogenization of convex integral functionals
- 11:00 – 11:45      Sebastian Andres (Technische Universität Braunschweig)  
Scaling limit of the harmonic crystal with random conductances
- 14:00 – 14:45      Hung Vinh Tran (University of Wisconsin-Madison)  
Periodic homogenization of linear elliptic equations  
in nondivergence-form: optimal rates and further
- 15:05 – 15:50      Wenjia Jing (Tsinghua University)  
Periodic high contrast environments: quantitative homogenization  
and wave propagation problems
- 16:10 – 17:00      Ryunosuke Mori (Meiji University)  
Blocking and propagation in two-dimensional cylinders  
with spatial periodicity

### August/20 (Tue)

- 10:00 – 10:45      Zhen-Qing Chen (University of Washington)  
Quantitative periodic homogenization for symmetric  
non-local stable-like operators
- 11:00 – 11:45      Ryoki Fukushima (University of Tsukuba)  
Sub-diffusive regimes for one-dimensional Mott variable-range hopping
- 13:30 – 14:15      Xiaoqing Guo (University of Cincinnati)  
Optimal homogenization rates in the stochastic homogenization  
in a balanced random environment
- 14:30 – 15:15      Qing Liu (Okinawa Institute of Science and Technology)  
Monge solutions of Hamilton-Jacobi equations
- 15:40 – 16:25      Tomoyuki Oka (Fukuoka Institute of Technology)  
Homogenization problem with nonlinear boundary conditions  
and its applications to optimal design problems
- 16:40 – 17:25      Tomohiro Aya (Kyoto university)  
Quantitative stochastic homogenization of elliptic equations  
with unbounded and non-uniformly elliptic coefficients
- 18:30 –              Banquet

**August/21 (Wed)**

- 10:00 – 10:45 Goro Akagi (Tohoku university)  
 $L^q$ -gradient estimates for distributional solutions to elliptic systems of  $p$ -Laplacian type in general domains
- 11:00 – 11:45 Naoyuki Ichihara (Aoyama Gakuin University)  
Recurrence and transience of optimal diffusions for ergodic type viscous Hamilton-Jacobi equations with inward drift
- 14:00 – 14:45 Hayate Suda (Tokyo Institute of Technology)  
Derivation of fractional diffusion equations from stochastic harmonic chains
- 15:05 – 15:50 Shuhei Kitano (Waseda University)  
Regularity estimates and weak solutions for fully nonlinear equations with singular right hand sides
- 16:10 – 16:55 Toshihiro Uemura (Kansai University)  
Periodic homogenization of jump-diffusion processes

Supported by:

- Kiban (A) 22H00099, (HI\*: Takashi Kumagai)
- Kiban (C) 22K03382, (HI\*: Hiroyoshi Mitake)
- Waseda University, Top Global University Project

Organizer: Takashi Kumagai (Waseda University)  
Hiroyoshi Mitake (University of Tokyo)