Homogenization of stiff inclusions through network approximation

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The homogenization of a homogeneous conductive medium randomly perforated with small inclusions of infinite conductivity is a well-known problem thanks to the work of Vassili Zhikov [2]. However, existence of an effective limit model is shown under assumptions on the interparticle distance, which exclude the study of dense settings. In this talk of stochastic homogenization, we provide a relaxed criterion ensuring homogenization relying on ideas borrowed from network approximation. This presentation is based on the joint work [1] with David Gérard-Varet from Paris University.

[1] D. Gérard-Varet, A. Girodroux-Lavigne. *Homogenization of stiff inclusions through network approximation.* Networks Heterogeneous Media, 2022.

[2] V. V. Jikov, S. M. Kozlov, O. A. Oleinik. *Homogenization of differential operators and integral functionals.* Springer Science & Business Media, 2012.

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