Random graphs and its applications for networks

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Equations on a graph for the flows in thin tube structures

We consider partial derivative equations on graphs appearing in asymptotic analysis of viscous flows in thin tube structures. Existence and uniqueness of their solutions are studied.

The talk follows the papers:

1. Panasenko G., Pileckas K., Flows in a tube structure: equation on the graph, Journal of Mathematical Physics, 55, 081505 (2014); doi: 10.1063/1.4891249.

2. Panasenko G., Pileckas K., Asymptotic analysis of the non-steady Navier-Stokes equations in a tube structure.I. The case without boundary layer-in-time. Nonlinear Analysis, Series A, Theory, Methods and Applications, 122, 2015, 125-168, http://dx.doi.org/10.1016/j.na.2015.03.008

3. Panasenko G., Pileckas K., Asymptotic analysis of the non-steady Navier-Stokes equations in a tube structure. II. General case. Nonlinear Analysis, Series A, Theory, Methods and Applications, 125, 2015, 582-607, http://dx.doi.org/10.1016/j.na.2015.05.018