

Percolation theory and the effective conductivity

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Percolation theory deals with the emergence of infinite structures (or lack thereof) in stochastic models. If we consider a porous rock, the question would be whether water *percolates*, i.e. seeps, through the whole rock or not. In more precise terms, we ask about the existence of an infinite connected vacant component inside the material.

In this talk, we want to have a deeper understanding of *how much* water percolates through rather than just asking *if* it percolates. This is related to the so called effective conductivity that comes up in the modelling of compound and porous materials.