Cylinders' percolation in three dimensions

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In this talk we are going to overview the recently introduced model of cylinders' percolation. This process can be understood as a Poissonian soup of infinite cylinders in R^d, governed by an intensity parameter u > 0. As u grows, more and more cylinders are removed from the space, making it harder for the remaining vacant set to percolate. We will discuss the existence of a phase transition for the percolation of the vacant set as u crosses a critical threshold, stressing the difficulties arising from the dependence of the model. Some of the discussed techniques are hopeful to work in quite general dependent percolation processes.

This talk is based in a joint work with Vladas Sidoravicius (IMPA) and Marcelo Hilário (UFMG) and can be found at http://w3.impa.br/~augusto/.