Divergence of Non-Random Fluctuation in First-Passage Percolation

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We consider the First-passage percolation on Z^d. There are two types of fluctuations in First-passage percolation: the random fluctuation and the non-random fluctuation. They are both important and well studied. Although there has been a significant progress of the upper bound due to the development of concentration inequalities, it is hard to get a non-trivial lower bound because of the lack of techniques. In this talk, we discuss the divergence of the non-random fluctuation.