

ÉCOLE D'ÉTÉ SMS 2012 « COMBINATOIRE PROBABILISTE »
25 JUIN - 6 JUILLET 2012

SMS 2012 SUMMER SCHOOL "PROBABILISTIC COMBINATORICS"
JUNE 25 - JULY 6, 2012

Cover times, Gaussian processes and majorizing measures (3 hours)

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Lecture 1 : Gaussian processes and majorizing measures I will recall the relevant background and tools from Gaussian processes, and then present a proof of Talagrand's majorizing measures theorem. The proof, essentially a rephrasing of Talagrand's argument, will be stated in a more combinatorial way that I think is easier to follow.

Lecture 2 : Cover times and the Gaussian free field In joint work with Ding and Peres, we use the majorizing measures theory to exhibit a close connection between the cover time of a graph and the expected square of its Gaussian free field. I will discuss this proof, along with the other main tool—the Dynkin isomorphism theory for Markov processes—and show how the connection can be used to answer some open questions on cover times.

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