## An introduction to Werner's work on conformally invariant systems

Many mathematical models of Statistical Physics have long been believed to exhibit conformal invariance. In two dimensions, physicists have successfully used this fact to construct a rich and beautiful physical theory, called Conformal Field Theory (CFT).

Through the introduction of new techniques, namely the Schramm- Loewner Evolution (SLE) and Conformal Loop Ensembles (CLEs), mathematicians have recently proposed an alternative approach to the study of conformally invariant systems in two dimensions. This new, intrinsically probabilistic, approach has allowed to recover many of the results derived by physicists but has also greatly deepened our understanding of such systems. Moreover, compared to the "traditional" CFT methods, it has the advantage of being mathematically rigorous.

Wendelin Werner has greatly contributed to the development of those new techniques and has applied them successfully in different contexts such as the study of Brownian Motion, the analysis of Statistical Physics models, a rigorous derivation of CFT.

In the first of these two talks, Federico Camia will give a gentle introduction to some of the key notions mentioned above. In the second talk Vincent Beffara will explain in some detail how SLE can be used to do explicit computations of the probabilities of some events, and how this allows for the derivation of so-called critical exponents, which are the main form in which CFT predictions are stated.