

## EINDHOVEN MATHEMATICS COLLOQUIUMS

HUGO DUMINIL (UNIVERSITÉ DE GENÈVE):  
CRITICAL TEMPERATURE OF PLANAR MODELS OF STATISTICAL PHYSICS

EURANDOM GREEN ROOM (LAPLACE BUILDING 1.105)  
29 FEBRUARY 2012, 15:30-16:30

Many models of statistical physics exhibit a phase transition as one parameter of the model varies. The study of the phase transition (in particular the localization of the critical point) is at the heart of modern mathematical physics and probabilities. In this talk, we will discuss how to compute the critical point for a large family of planar lattice models including the bond percolation and the Ising model. We will describe several standard techniques such as coupling arguments, duality and the theory of sharp thresholds. At the end, we will state several open problems related to the work of O. Schramm, G. Lawler, W. Werner and S. Smirnov.