The 2D random-cluster model at and around criticality

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The aim of this mini-course is to present in some (possibly all) detail our recent results with Hugo Duminil-Copin on the two-dimensional random-cluster model on the square lattice, namely the determination of the critical point and the sharpness of the phase transition. The course will be split into two roughly independent parts, the first one deriving p_c through the use of sharp-threshold results and RSW-like estimates, and the second one exploiting Smirnov's fermionic observable away from the self-dual point to gain estimates on two-point functions.