23. Perform the real space RG calculation for the Ising model in $d = 1$ using the transfer matrix method: We work with a system of N sites, N may be taken to be even, and we assume periodic boundary conditions. The Hamiltonian is

$$-\beta H = K \sum_{i=1}^{N} S_i S_{i+1} + h \sum_{i=1}^{N} S_i + N K_0$$

The partition function can be expressed as a trace over all spins of a product of the transfer matrices. Now perform the sum over the even numbered spins only, to obtain a new set of transfer matrices for a system with twice the lattice spacing as the original system. Calculate the renormalized coupling constants K', h', K_0' in terms of K, h, K_0. For vanishing magnetic field h introduce a convenient function of the coupling constant K and discuss fixpoints and sketch the flow.

24. Perform the real space RG calculation for the Ising model in $d = 2$ on a triangular lattice in a nonzero magnetic filed, using the approximation method described in the lecture. Define blockspins by the majority rule. Do the calculation to zeroth order in the interaction between spins in different blocks. Discuss the fixpoints and the corresponding flow behaviour.

25. Perform the real space RG calculation for the Ising model in $d = 2$ on a triangular lattice in a nonzero magnetic filed, using the approximation method described in the lecture. Define blockspins by the majority rule. Do the calculation to first order in the interaction between spins in different blocks. Discuss the fixpoints and the corresponding flow behaviour.