

Homework (C)

The Canonical RG Flow

Assume there are no physical renormalization effects, i.e. all $\overline{u}_\alpha(\vec{k})$ are independent of k .

dim. free

Compute the β -fcts. of the dim. less cplgs. u_α ,
find the fixed point(s) of the resulting flow,
and determine the associated critical exponents.

Homework (E2)

The scalar FRGE can be written in the (still exact!) form

$$k \frac{\partial}{\partial k} \Gamma_k [\phi] = \frac{1}{2} k \frac{D}{Dk} \text{Tr} \ln \left[\Gamma_k^{(2)} [\phi] + R_k \right]$$

How is $\frac{D}{Dk}$ to be interpreted?

Use this representation to explain the relation of the EAA to the standard eff. action in the one-loop approximation.

Homework (E1)

Derive the FRGE for the scalar EAA
starting from the functional integral for W_k .

Hint: Use (and prove) the relations
(a) and (b) involving $G(x,y)$