Scaling forms: Disordered state

$t=0$ $\rightsquigarrow$ quench to $T=T_c$

$$\xi(t) \sim t^{1/z}$$

$\Rightarrow$ two-time functions dep. on

$$q^z t \quad , \quad q^z s$$

Renorm. Group:

$$t>s \quad \begin{cases} R_{q=0}(t,s) = A_R\,(t-s)^a \left(\frac{t}{s}\right)^\theta F_R(s/t) \\ C_{q=0}(t,s) = A_C\,(t-s)^{a+1} \left(\frac{t}{s}\right)^{\theta-1} F_C(s/t) \end{cases} \qquad F(0)=1$$

$a \equiv \dfrac{2-\eta-z}{z}$ $\quad$ θ: Initial slip exp. JSS '88

$F_R\,,\,F_C \rightsquigarrow$ universal

$T=T_c$, $\xi=\infty$ $\begin{cases} \text{Transl. + Rotat. symm.} \\ \text{Scale invariance} \end{cases}$ $\rightsquigarrow$ Covariance under CONFORMAL group " $\vec{x} \to b(\vec{x})\,\vec{x}$ "

$$O(b\vec{x}) = b^{-\Delta_0}\, O(\vec{x})$$

$$\vec{x} \mapsto b\vec{x}$$

Anisotropic Scale Invariance:

$\vartheta \neq 1$

$$O(b^\vartheta t, b\vec{x}) = b^{-\Delta_0}\, O(t,\vec{x})$$

$\overset{?}{\rightsquigarrow}$ Local Scale Invariance $b = b(t,\vec{x})$

Ex.:
- equilibrium dyn. $\vartheta \equiv z$
- Lifshitz points
- nonequil. crit. phen. (DLG..)

M. Henkel '02 ...
M. Pleimling
C. Godrèche '01
J.M. Luck