S2 Table: Variation of scaling exponent of MSD

Type	Theory	Simulation LJ strength ϵ	Fits to simulation[2] $\phi = 0.4$	Fits to simulation[3] (unconfined)
Disconnected noninteracting beads	$\lambda = 1$	$\epsilon = 0$	$\lambda = 1$	
Disconnected interacting beads [1]	$\lambda = 3/4$	$\epsilon = 0.25, 0.5$	$\lambda = 0.8$	
Phantom polymer (Rouse dynamics [2])	$\lambda = 1/2$	$\epsilon = 0$	$\lambda = 0.5$	$\lambda = 0.5$
Polymer in good solvent[1]	$\lambda = 6/11$	$\epsilon = 0.25$	$\lambda = 0.4$	$\lambda = 0.5$
Polymer in poor solvent[1]	$\lambda = 2/5$	$\epsilon = 0.5$	$\lambda = 0.4$	$\lambda = 0.25$
Polymer melts (reptation [3])	$\lambda = 1/4$	$\epsilon = 1$		$\lambda = 0.25$

[1] Polymer of length M that is confined in a space has scaling exponent of MSD $\lambda = \frac{2\nu}{2\nu+1}$, where ν is related with MSD $\sim M^{2\nu}$ [4].

[2] S7 Fig

[3] S5 Fig

Table: MSD, $\langle r^2 \rangle \sim \tau^\lambda$

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