

**S3 Table: Comparison between scaling exponent of RMSD and scaling exponent of mixing index**

Type	LJ strength $\epsilon$	$\lambda/2$ (for $\phi = 0.4$ )	$\lambda/2$ (unconfined)	$\beta$ (for $\phi = 0.4$ )
Polymer in good solvent	$\epsilon = 0.25 \text{ k}_\text{B} \text{T}$	$\lambda/2 = 0.2$	$\lambda/2 = 0.25$	$\beta = 0.25$
Polymer in poor solvent	$\epsilon = 0.5 \text{ k}_\text{B} \text{T}$	$\lambda/2 = 0.2$	$\lambda/2 = 0.125$	$\beta = 0.22$
Polymer melts (reptation)	$\epsilon = 0.75 \text{ k}_\text{B} \text{T}$		$\lambda/2 = 0.125$	$\beta = 0.13$
Polymer melts (“jammed”)	$\epsilon = 1 \text{ k}_\text{B} \text{T}$		$\lambda/2 = 0.125$	$\beta = 0.076$

**Table:** RMSD ( $\sqrt{\langle r^2 \rangle} \sim \tau^{\lambda/2}$ ) and chromosome mixing index ( $\alpha \sim t^\beta$ )