Slip-link and tube models make different, measurable predictions of polymer relaxation

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We have attempted to coarse grain the slip-link model to a tube level of description for starbranched chains.

We find that the two models predict very different molecular weight dependence on the relaxation time of star arms without constraint dynamics.

Moreover, we find that the tube level of description is incapable of capturing the physics in the slip-link model.

We conclude that the two theories are incompatible, although both conform to fundamental thermodynamic principles.