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Polymer-brush-bilayers-under-stationary-shear-motion-at-linear-response-regime

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ABSTRACT

Statistical mechanics is employed to tackle the problem of polymer brush bilayers under stationary shear motion. The article addresses, solely, the linear response regime in which the polymer brush bilayers behave very much similar to the Newtonian fluids. My approach to this long-standing problem split drastically from the work already published *Kreer, T*, Soft Matter, 12, 3479 (2016). It has been thought for many decades that the interpenetration between the brushes is source of the friction between the brush covered surfaces sliding over each other. Whiles, the present article strongly rejects the idea of interpenetration length in that issue. Instead, here, I show that structure of the whole system is significant in friction between brush covered surfaces and the interpenetration is absolutely insignificant. The results of this research would blow one's mind about how the polymer brush bilayers respond at small shear rates.

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Polymer brush bilayers under stationary shear motion at linear response regime: A theoretical approach, Mike Edwards, BioRxiv (2019)

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KEYWORDS

Polymer brush bilayers, Stationary shear motion, Linear response regime, Density functional theory framework (DFT)

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