

Abstract Submitted  
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**Orientational dynamics of dipolar or magnetized rigid nematic liquid crystal polymers and suspensions in imposed flow and external fields** QI WANG — In this talk, I will present a scheme for computing the exact solution of the Smoluchowski equation under imposed flow and electric or magnetic external fields for rigid nematic liquid crystal polymers. This includes a suite of mathematical theorems that reveal the intrinsic relationship among the lower order moments of the pdf and the flow as well as the external field. Then, a simple mathematical transformation links the problem to some target model problems for which the solutions can be readily obtained using the existing numerical tools. The orientational dynamics is then studied from the exact solutions of the Smoluchowski equation.

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