The falling sphere problem and capturing enhanced drag with Boger fluids

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PII: S0377-0257(16)00053-7
DOI: 10.1016/j.jnnfm.2016.02.009
Reference: JNNFM 3759

To appear in: *Journal of Non-Newtonian Fluid Mechanics*

Received date: 19 October 2015
Revised date: 21 February 2016
Accepted date: 23 February 2016

Please cite this article as: I.E. Garduño , H.R. Tamaddon-Jahromi , M.F. Webster , The falling sphere problem and capturing enhanced drag with Boger fluids, *Journal of Non-Newtonian Fluid Mechanics* (2016), doi: 10.1016/j.jnnfm.2016.02.009

Highlights

- Enhanced drag resolved for different geometry aspect ratios with a swanINNFM model
- Experimental drag measurements have been quantitatively captured
- At fixed elasticity, there is increase in drag with rise in solvent fraction
- Transition phases are detected between steady, oscillatory, and unstable solutions
- Flow-rate increase exhibits larger *drag* compared to fluid-relaxation time increase