

Abstract Submitted  
for the DFD10 Meeting of  
The American Physical Society

**Multiscale modeling of bubbles rising in non-Newtonian fluids**

ARTURO FERNANDEZ, North Carolina A&T State University — A multiscale method combining front-tracking with Brownian dynamics simulations is used to examine the dynamics of bubbles rising in a non-Newtonian fluid. Firstly, the evaluation of the material properties for the viscoelastic fluid will be discussed. Then, the results from the computations for a single bubble will be presented. We will discuss how the multiscale methodology is able to capture main features of the system dynamics including the appearance of a negative wake behind the bubble and the discontinuity in the terminal velocity.

Arturo Fernandez  
North Carolina A&T State University

Date submitted: 07 Aug 2010

Electronic form version 1.4