

Simulation of *Trypanosoma Cruzi* swimming in shear flow

Alberto Castillo* and Gabriel Villalobos†

* Universidad de Bogotá Jorge Tadeo Lozano y Universidad Central
e-mail: albertomcastillo@outlook.com

† Universidad de Bogotá Jorge Tadeo Lozano
Carrera 4 Número 22 – 61 – Módulo 7 – Piso 5
e-mail: gabriel.villalobosc@utadeo.edu.co

ABSTRACT

Chagas disease or American Trypanosomiasis is caused by *Trypanosoma cruzi* (*T. cruzi*), a protozoan parasite that flows within blood; while living and reproducing inside its human host for several years would cause different diseases and even death [1]. In order to fight the disease, it is crucial to understand the way the parasite moves inside the body of the host. Hereby, we present a *T. cruzi* bloodstream trypomastigote model aimed at studying the effect of the blood flow and Reynolds number in the parasite tropism and mechanical properties. The parasite itself is modeled using spring network models (as in [2] and [3]), and the flow by dissipative particle dynamics, DPD [4],[5]. The present work constitutes a first step towards the modeling of the interaction between the *T. cruzi* and the blood corpuscles.

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