Kinematics of a sphere moving through a non-Newtonian liquid HANS WHEELERSBURG, NORA GRANETO, PIOTR HABDAS, Dept. of Physics, Saint Joseph's University — When a sphere moves through a non-Newtonian liquid, it creates an envelope of sheared liquid around the sphere. By using different tube sizes and pulling the sphere at different velocities we examine the dimensions of the envelope and study the effect of the walls of the tube on the sphere in motion. Also we study how the drag force acting on the sphere varies with the tube size, sphere velocity, sphere size, and the properties of the non-Newtonian liquids (i.e. yield stress). In a Newtonian liquid, the drag force acting on the sphere is proportional to the velocity of the sphere and follows the Stokes Law. The drag force acting on a sphere moving through a non-Newtonian liquid does not follow this dependence and we are currently investigating the relationship of the drag force on velocity in non-Newtonian liquids.

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