**Fluid Mechanics of a Cylinder Rolling over a Liquid Pool**

Duration: 4 or 8 months

Location: Pulp and Paper Centre, UBC

Supervisors: Professors Sheldon Green, Boris Stoeber, and Neil Balmforth

Project Description:

The multinational company LB Foster has a research arm in Burnaby. That research arm has had a research relationship with Dr. Green for more than two decades. One of the products manufactured by LB Foster is a product that is applied to railroad tracks to change the coefficient of friction between the wheel and track to an optimal value of around 0.3. One means to apply the product is to have a wheel roll over a pool of the liquid sitting on the rail. Over the past few years UBC has studied the complicated fluid mechanics when a wheel rolls over a pool of liquid. Certain aspects of the interaction are understood, but other aspects, particularly product “painting” and the failure to “lift-off” are not understood. The goal of this project is first to carry out experiments related to painting and lift-off, and then to develop a theory to explain these phenomena.

Characteristics of the Ideal Candidate:

The ideal candidate will be interested in research. They will have a keen interest in fluid mechanics, good experimental skills, and the courage and intellectual curiosity to attempt to understand something that no one has previously explained.

Benefits to the Candidate:

* *An opportunity to experience academic research, as might be experienced by a graduate student*
* *An opportunity to contribute to a research paper*
* *A chance to connect with a major company with strong local ties*
* *Both hands on lab and testing experience as well as work-from-home opportunities*