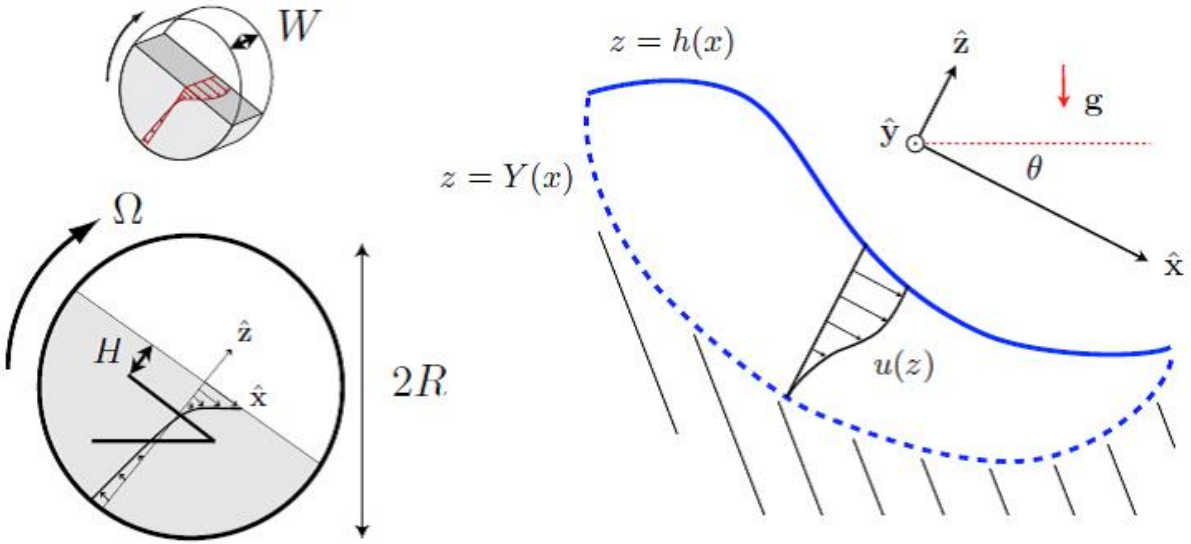
Shaking Seeds - Fluid/Impact Modelling

February 3, 2017

Outline

Problem & Aim



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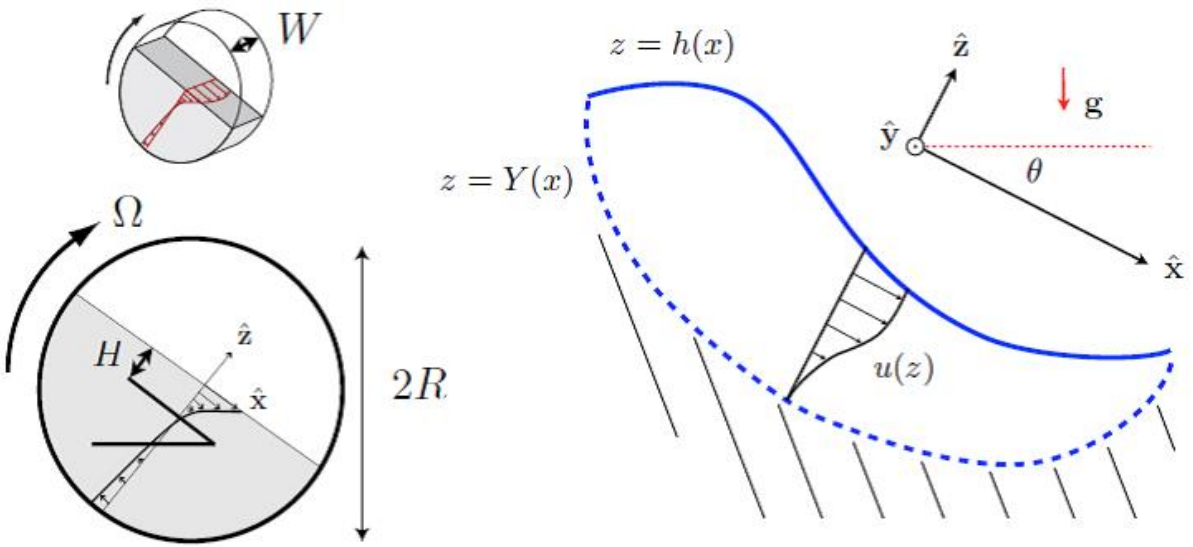

- Seek to model the seeds as a fluid
- Attempt to understand the behaviour of the spread of coating

Theoretical Considerations

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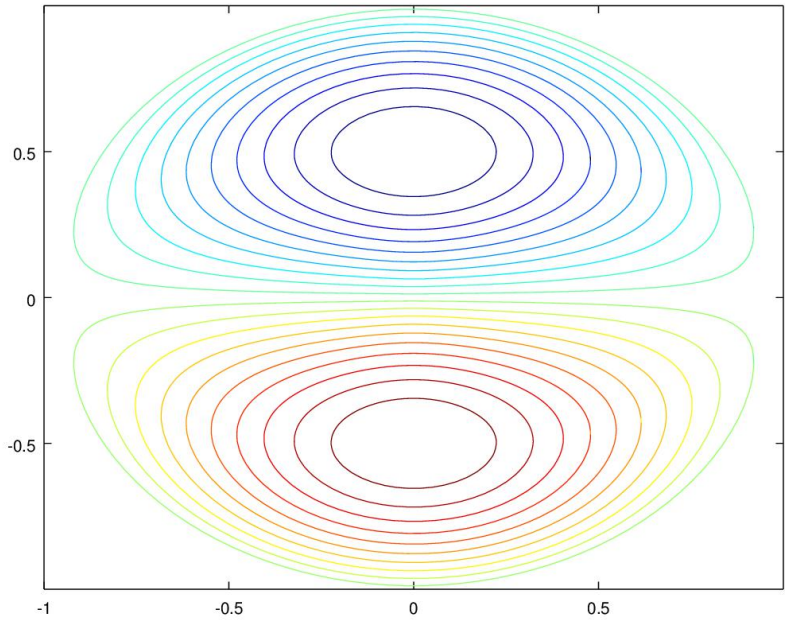
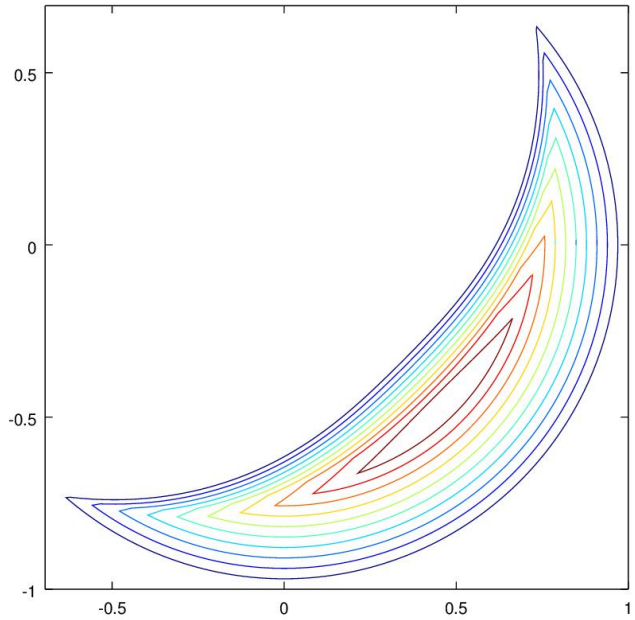
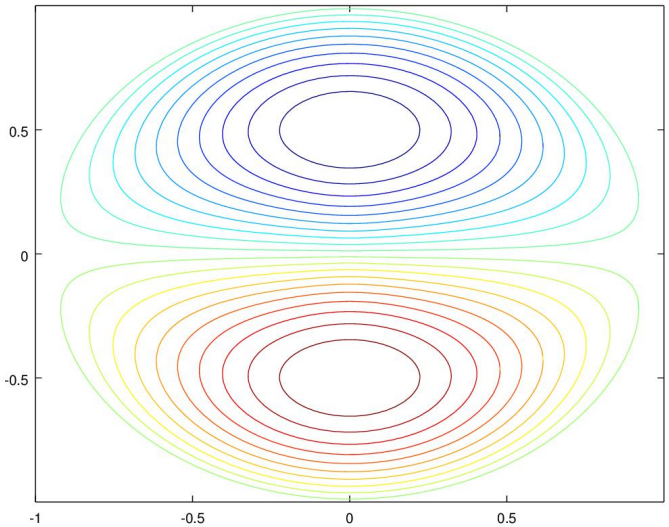
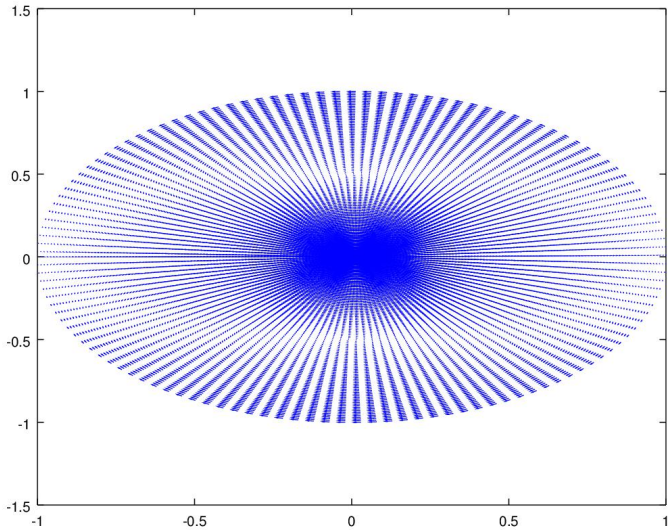




Use Twin Vortex Flow





Stream Function

$$\psi = \frac{\omega}{2} r(r - R)\sin\theta$$

Flow Field

$$u_r = \frac{\omega}{2}(r - R)\cos\theta, \quad u_\theta = -\frac{\omega}{2}(2r - R)\sin\theta$$

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- Construct some vorticity dependence for ε

2 Particle Tracing

50 Particle Distribution

300 Particles Colour Map

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- Conisder time dependent diffusion
- Explore optimal mechanism for introducing