

# ITT5 - Hybrid seed coating

Kit, Tim, Marcus, Gianluca, Andrea, John, Matthias

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# Recalling the problem

- Initial situation:
  - Seeds in a box are mixed to achieve a sufficient coating with a fluid.
- Possible questions:
  - How to mix?
  - How long to mix?
  - What shape of barrel to use?
  - What initial conditions to use?
- Our approaches:
  - Simulation: 2D mixing of seeds in a rotating barrel.
  - Theoretical: Derive a PDE for the covering density.
  - Theoretic/numerical: Combine the simulation and the theoretical approach.

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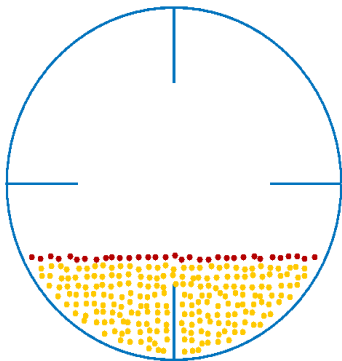
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# The simulation

- Setting: Seeds in a rotating barrel with blades.
- Initial condition: Only the top layer of seeds is covered with the fluid.



# The theoretical approach

- Derive equations for:
  - $\langle N_n(i,j) \rangle$ : The probability to find a seed at time  $n$  at position  $(i,j)$ .
  - $\langle C_n(i,j) \rangle$ : The probability to find a **coated** seed at time  $n$  at position  $(i,j)$ .
  - Take the hydrodynamic limit.

