



solidParticleCloud



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Background information

- This is a presentation about the OpenFOAM class `solidParticleCloud`
- Used in OpenFOAM to calculate solid particles
- Add particle- particle interaction

Assumptions about the particles

- Rigid spherical particles
- Hard sphere sliding binary collisions

Particle forces

- Drag, gravity and buoyancy forces
- Drag force:

$$F_D = \frac{18\nu_c}{d^2} \frac{\rho_c}{\rho_p} \left(1 + 0.15 \text{Re}_p^{0.687} \right)$$

Collisions

- Conservation of impulse
- Collisions occurrences are calculated with the deterministic method
- Particle collisions losses are described by the coefficient of restitution

$$e = \frac{V_{before}}{V_{after}}$$

Particles in the case directory

- File constant/particleProperties contains particle constants
- Directory 0/lagrangian/cloudName contains initial position, diameter and velocity for each particle



Thank you
Questions or comments?

