

## Fluids and Space Engineering Seminar

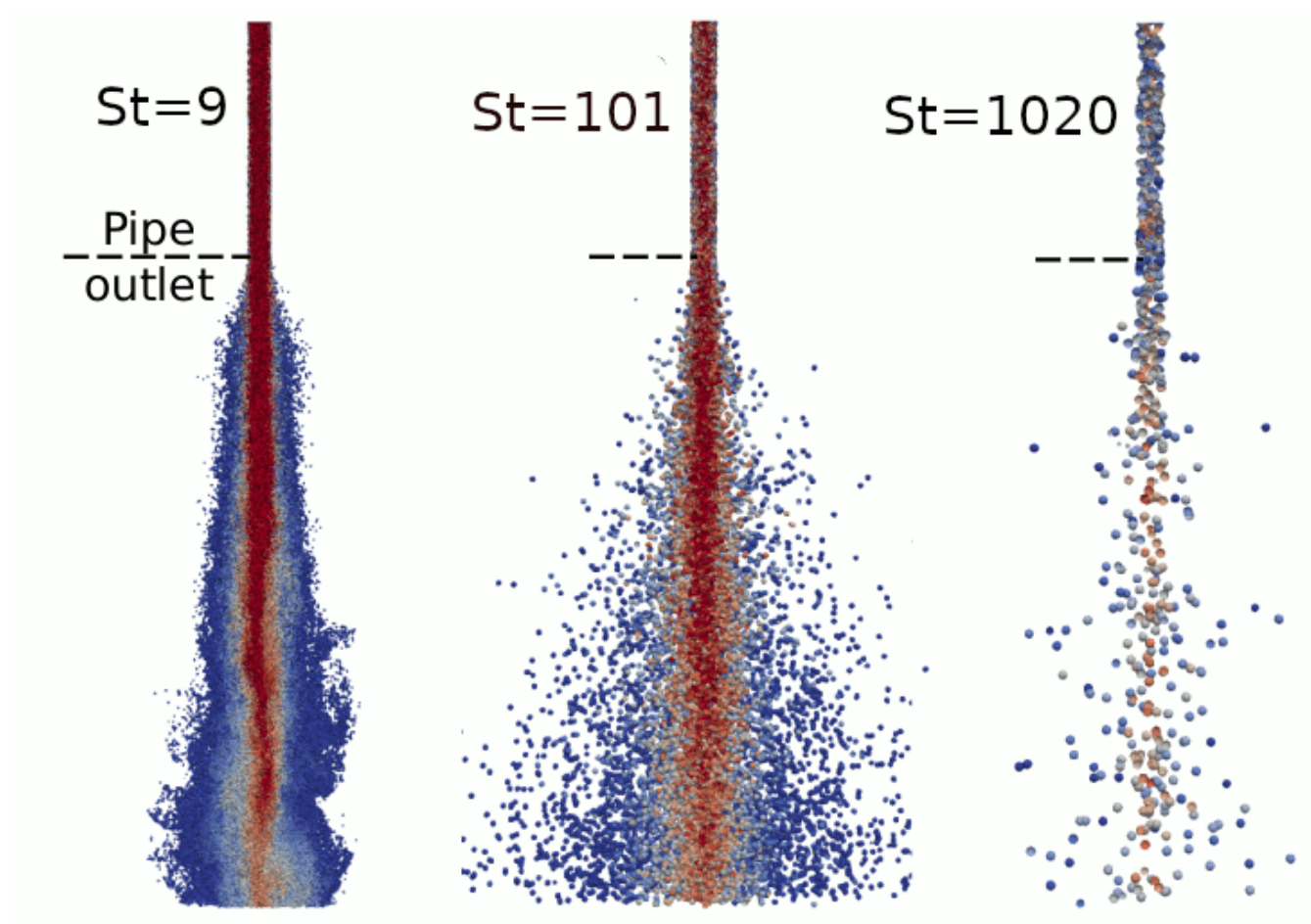
Date: Thursday, June 22, 2023 at 14:15 h

Location: ZARM, Room 1730

### Drag and diffusion analysis of particle laden flow

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In additive manufacturing processes, solid particles carried by a carrier gas are applied to the workpiece to be processed. Depending on size and particle loading, the particles are more or less scattered at the nozzle outlet. The decisive factor here is the multiphase flow that occurs in the nozzle feed line. While the particle drag is a phenomenon that can be easily described, the flow resistance at the wall resulting from the particle/wall interaction is described analogously to molecular micro flow. Depending on the characteristic Stokes number, the influence of wall interaction and particle flow resistance on the pipe flow to be described is predicted. Even though larger particles are easier to handle, the resulting "larger" Stokes number negatively affects the regulating property of the carrier gas flow.