Curiculum vitae.

Nicolas Fintzi

25 août 2024

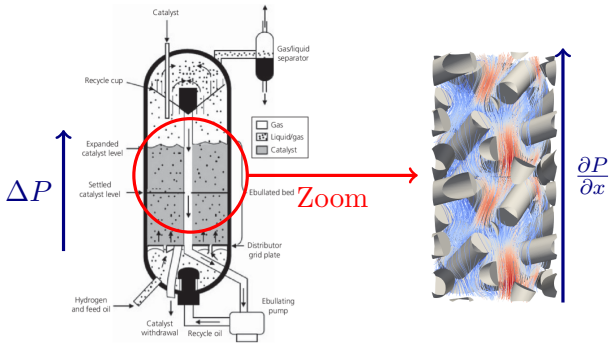
Avant la thèse . . .

Formation :

1. 2016 - 2018 : DUT Génie Mécanique et Productique (GMP) Lyon 1.
2. 2018 - 2019 : INSA Lyon : Spécialité Génie Mécanique (Lyon).
3. 2019 - 2021 : INSA Lyon : Spécialité Plasturgie et composite (Oyonnax).

Stage de M2 dans le département R15 à l'IFPEN.

Motivation - Ebullated, fluidized and fixed beds of cylindrical particles



Highly complex coupled physical phenomena :

- 2 or 3 phases : fluid, gas, and solid
- Species transport
- Chemical reaction
- Heat and mass transfer

Parameters :

- $1 < Re_p < 200$
- $\phi \approx 0.3$
- $\chi \approx 6$

Objectives $\rightarrow$ Estimate ΔP for any set of parameters

Premières étape : Modelisation d'une particle cyldrique isolé avec le code de calcul `OpenFoam`

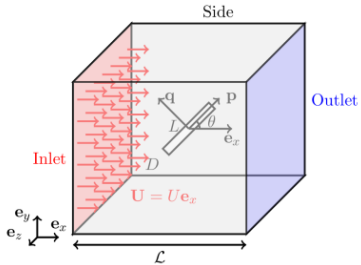


FIG. 1. Scheme of the computational domain.

Force :

$$\mathbf{f} = \mu L(\mathbf{R}^{Re} + \mathbf{S}^{Re}) \cdot \mathbf{u}$$

Moment angulaire :

$$\mathbf{t} = \mu L^2 \mathbf{T}^{\mathrm{Re}} \cdot \mathbf{u}$$

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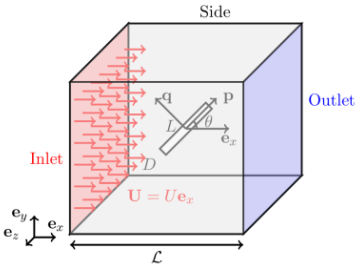

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PHYSICAL REVIEW FLUIDS **8**, 044302 (2023)

Inertial loads on a finite-length cylinder embedded in a steady uniform flow

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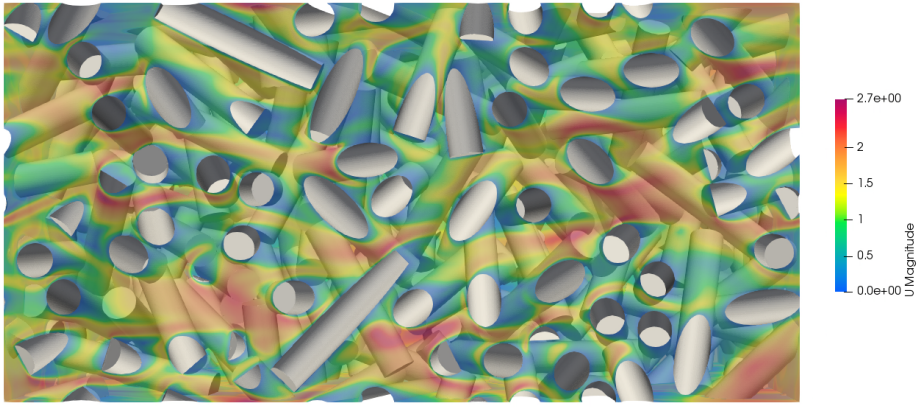
(Received 17 October 2022; accepted 27 February 2023; published 5 April 2023)

Direct numerical simulations are performed to evaluate the hydrodynamic forces and torque on finite-length cylinders embedded in a uniform flow for a wide range of aspect ratios ($2 \leqslant \chi \leqslant 30$). Both viscous-dominated and moderately inertial regimes are investigated. We start the investigation by comparing the numerical results to the predictions of the Khayat and Cox [J. Fluid Mech. **209**, 435 (1989)] slender-body theory. We show that this theory can predict with reasonable accuracy the drag force on the cylinder for a large

Deuxème étape : Modelisation d'un lit fixe de particules cylindrique (`OpenFoam`).



- Mise en place d'un code pour la simulaiton de volume reprÃĪsentatif de lit fixe de particules cylindrique.

Deuxème étape : Modelisation d'un lit fixe de particules cylindrique (`OpenFoam`).

OpenFOAM® Journal

Volume 2 [Enter correct Journal Section here], Pages 1–999
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Automatic pre- and post-processing for direct numerical simulation of assemblies of spheres, cylinders or spherocylinders

Maria Jersey[1,*], John Smith[2], and Philip Murphy[2]

[1]Address1
Email address: Emailaddress1

[2]Address2

DOI: TBD
Results with version(s): OpenFOAM® v20xx
Repository: https://github.com/xxx

Abstract. This is the place for an abstract.

→ Projet repris part Jelena Marack (Post-Doc R12)

Ma thèse