Project Progress - Week 1 of March 2025

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This is a file that contains the tracking of the activities related to the Hydrodynamic Interactions project during the first week of March 2025.The activities are divided into groups and a summary of the progress is provided.

1 Initial Status of the Project

The project has made significant progress up until the first week of March 2025. The key achievements include:

- Meetings with Raúl to discuss the hydrodynamic interactions.

- Documentation in Notion of the basic theory behind hydrodynamic interactions.

- Preliminary exploration of the "spreadinterp" repository.

- Creation of a general function to obtain the mobility tensor given a solver and a set of particle positions.

- Initial tests for obtaining the "Self-Mobility Tensor".

2 Potential Tasks for the Week

The following tasks have been identified as potential areas of focus for the first week of March 2025:

- Development of the Python module with the implementation functions.

- Tests for obtaining the RPY tensor. Discussion of the representation and its properties.

- Initial functions to establish specific particle arrangements and geometries.

3 Week Tracking

3.1 Monday - March 3, 2025

The repository has been reorganized, and the functionalities of the gitignore, setup.py, and __init__.py files have been discussed to manage the import of functions and modules. The use of pytest and the inclusion of asserts in the test functions are emphasized. The correct functioning of the self-mobility tensor test is verified.

3.2 Tuesday - March 4, 2025

I have been learning how to compile LaTeX projects located inside the repository. The pdf tab viewer in VSCode has been installed and configured to facilitate the visualization of the documents. This document serves as an example of the compilation process.

3.3 Wednesday - March 5, 2025

The tasks for the week have been specified and the progress in documentation, code, and testing has been tracked.

4 Current Next Steps

The next steps for the project include:

- An script that obtains the RPY mobility for two particles as a function of the distance between them.

- Development of the Python module with the implementation functions.

- Tests for obtaining the RPY tensor. Discussion of the representation and its properties.