Technische Universität Dresden • Faculty of Mathematics

Diffusitivity of deformable cells

Master's thesis

to obtain the second degree

Master of Science
(M.Sc.)

written by

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Contents

1   Introduction

I will cite [Bruna and Chapman, 2012] for sure.

2 Cell model

* introduce the Discrete cell form (DCF)
- can i just reference my bachelor thesis or how should i do that?

2.1 Discrete cell form

* the discrete cell form consists of a list that holds all wall points in consecutive order

2.2 Cell dynamics

* area force
* edge force
* interior angle force
* overlap force

3   Sanity check

* After introducing cell model and dynamics, we want to check whether it shows the same dynamics as the billiard model from [Bruna and Chapman, 2012] when setting the parameters such that the cells should have the same characteristics.

References

[Bruna and Chapman, 2012] Bruna, M. and Chapman, S. J. (2012). Excluded-volume effects in the diffusion of hard spheres. *Phys. Rev. E*, 85:011103.

Statement of authorship

I hereby declare that I have written this thesis (*Diffusitivity of deformable cells*) under the supervision of Jun.-Prof. Dr. Markus Schmidtchen independently and have listed all used sources and aids. I am submitting this thesis for the first time as part of an examination. I understand that attempted deceit will result in the failing grade „not sufficient" (5.0).

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