The Interaction of Bacteria and Cilia in Viscoelastic Media

Under the NWO Start-Up funding scheme, I seek to fill two positions in my group Soft Matter, Hydrodynamics, and Biophysics for the simulation of the interaction between cilia and bacteria in mucous environments:

- 4 year PhD in Physics
- 2 year Postdoctoral Research Assistant position

with intended starting date February 2019 (is negotiable). The salary will match the Dutch University pay scale.

The aim of the project is to analyze the interaction between bacteria and cilia in viscoelastic media using simple physical models and work towards the simulation of more bio-realistic rheological responses. The underlying fluid dynamics will be tackled using the lattice-Boltzmann method, which the PostDoc and PhD will develop further. Connection to experiments is made through collaboration with the University Medical Center Utrecht.

Successful applicants will be hosted by the Institute for Theoretical Physics at Utrecht University. They may also benefit from the connections to the Soft Matter Group at Utrecht University. The PhD student will be embedded within the Dutch Research School of Theoretical Physics and partake in their activities.

The requirements for the **Postdoctoral research position** is a PhD degree in theoretical or computational physics (or a related field) with a strong background in statistical physics and hydrodynamics. The task necessitates active contribution to software development, hence experience programming is a must, preferably using C or C++.

For the **PhD position** a Master's degree in theoretical or computational physics (or a related field) is required with a strong background in statistical physics and hydrodynamics. Programming experience is considered highly beneficial.

Candidates are encouraged to send their applications electronically as a single PDF document (including a detailed CV, list of publications, copies of certificates, letter of motivation, and research interests) to Dr. Joost de Graaf using the e-mail title "*Application for PhD Position in Viscoelastic Hydrodynamics*" and "*Application for PostDoc Position in Viscoelastic Hydrodynamics*" respectively.