Stellingen

behorende bij het proefschrift

Collective Behaviour of Self-Propelling Particles with Conservative Kinematic Constraints

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1. The essence of the emergence of coherent motion is the tendency of self-propelling particles to align their velocities with the neighbouring particles.

_Dit proefschrift, Hoofdstukken 2 en 5;

2. The obtained density dependence of the velocity distribution is caused by the nature of the interactions between self-propelling particles.

_Dit proefschrift, Hoofdstuk 2._

3. The vortical flow profiles obtained in the local hydrodynamic model are found to be similar to those obtained by Vicsek et al.

_Dit proefschrift, Hoofdstukken 2 en 3._

4. The neutral stability of the stationary flows is caused by the conservation of the kinetic energy.

_Dit proefschrift, Hoofdstuk 4._
5. Coherent motion in bacterial colonies is most likely driven by external factors, rather than by non-potential interparticle interactions.


6. The use of phenomenological extensions of the Navier-Stokes equation to describe coherent motion of self-propelling particles lacks a sufficient physical justification.


7. The consideration of particles with different speeds is unnecessary for the construction of a minimal model of collective motion of self-propelling particles.


8. In contrast to what is stated by Gazi et al., the swarming behaviour of self-propelling particles is not due to the interplay between a long range attraction and a short range repulsion between the particles, but the result of the interactions of a non-potential character.


9. The smallness of the fluctuation region in Coulombic systems is possibly explained by the presence of a tricritical point.


10. Een beetje te veel chocola is precies genoeg.

11. When words fade music flourishes.