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Titre

Active particles under strong boundary confinement.

Résumé

It's been long known that active particles have a tendency to accumulate near walls and get trapped at corners. More recently, these features have been used to control active suspensions, e.g. direct bacteria or get them to power micro-devices. However, a general understanding of how boundary shape affects the properties of active suspensions is still missing. Using a simple model of active suspension, I will show how one can derive a general relationship between the particle density and the shape of the box. Despite its limitations (the suspension must be strongly confined and dilute), the fact that the result holds for arbitrary box shapes makes it a promising tool to better understand and design confining boxes for active suspensions.

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