# The patchy story of striped nanoparticles: a molecular simulation perspective

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## Abstract

Nanoparticles decorated with ligands in various surface formations have been one of the most intriguing developments in nanomaterial science, with potential applications in drug delivery, imaging and sensing. The key barrier in further implementation of the technologies based on these nanoparticles is lack of fundamental understanding of the mechanisms of their interaction with cell membranes. Molecular simulations, summoned to shed some light on this problem, encountered a number of challenges associated with the complexity of the systems, spatial and temporal length scales. In this presentation, I will review our efforts in this direction as well as relate our recent findings to the ongoing research in other groups. Indeed, thanks to molecular simulations and theoretical efforts, we now know much more about how these nanoparticles interact with model membranes; and yet the main question on how they get inside the cell remains largely open.