

BENEMÉRITA UNIVERSIDAD AUTÓNOMA DE PUEBLA



**INSTITUTO DE FÍSICA
“Luis Rivera Terrazas”**



**SEMINARIO
“DR. JESUS REYES CORONA”**

“Diffusion of active matter with inertia”

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In this work, we study the motion of active Brownian particles (ABPs) while keeping both translational and rotational inertias. Following a Langevin formalism, it is theoretically found that whereas translational inertia does not play a role on the ABPs effective diffusion, rotational inertia is able to enhance the ABPs' diffusion. To elucidate such a new effect, one has to properly take into account the rotational inertia contribution in the orientation correlations. The mean-square speed for this system is also studied and its dependence on translational and rotational inertias is also theoretically found. To validate our analytical results, Brownian dynamics simulations are also performed showing an excellent agreement with our theoretical predictions for both, effective diffusion and mean-square speed of the system.

**Auditorio-IFUAP
Viernes 5 de Octubre de 2018
13:00 Hrs.**