

# SEMINÁRIO DE MECÂNICA

## Granular segregation in rubble-pile asteroids

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**Abstract.** Before the first spacecraft encounters with asteroids, scientists assumed that asteroids were monolithic rocks. But many large asteroids are not monolithic but rubble piles, only maintained by self-gravity, and without any chemical cohesion between grains. Due to small impacts, pressure radiation, and tidal forces, asteroids experience small perturbations. These perturbations can induce granular segregation in asteroids. In this talk, we investigate numerically granular segregation in rubble-pile asteroids, using 2D and 3D soft sphere molecular dynamics. We detail the numerical methods used to simulate granular assemblies. We show that simple physical ingredients are sufficient to reproduce segregation and then we study the influence of grains properties on this phenomenon.