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## **Simulations of Ellipsoidal PBH Formation and the impact of Non-Spherical effects on the PBH mass function**

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Numerical simulations have been instrumental in advancing our understanding of Primordial Black Hole (PBH) formation and in providing precise estimates of their abundance in the Universe. Traditionally, these simulations have assumed spherical collapse, but indeed, the most realistic initial configuration is an ellipsoid. In this presentation, I will discuss recent findings on non-spherical PBH formation, focusing on its dynamics and the effect of non-sphericities on the threshold of formation. Our results indicate, for the cases tested, that non-spherical effects are crucial when the fluctuation amplitude is near the collapse threshold (critical regime), preventing a significant number of configurations from forming black holes. However, when considering these effects in the statistical estimation of the PBH mass function, their overall impact is minimal.

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