

# Jeans instability in the field of external galactic asymmetric halo

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## Abstract

The Jeans instability is studied in the spherically symmetric and asymmetric external gravitational field. Linear stability analysis has shown that external potential makes Jeans instability periodic, and instability is revealed as gravitational overstability. It seems that external tidal field can be disruptive, that disrupts Jeans instability, and compressive that promotes the instability. Jeans instability is studied at different distance from the galactic center using gravitational field model of a spiral galaxy. Asymmetric halo is analyzed in the axial symmetry using elliptic asymmetry model. The effect of asymmetry on the Jeans length and mass is analyzed.