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Tidal force in Newtonian gravity

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In this presentation, I will delve into the behavior and impact of tidal forces within the realm of Newtonian gravity. I will provide concrete examples that illustrate solutions and outcomes by analyzing the Newtonian deviation equation. Furthermore, I will extensively explore the conditions under which tidal forces can exhibit compressive or disruptive effects by leveraging different model density profiles. Lastly, I will rigorously analyze the stability criteria for two density profiles, namely the Power Law and Sersic, using the Jog mass and length conditions in the presence of tidal forces, and draw comparisons to the Jeans mass and length in their absence.

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