
Lopsided spiral galaxies

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Abstract

The light distribution in many spiral galaxies is observed to be lopsided, with the spatial extent much larger along one side, as in M 101. This indicates an azimuthal mass asymmetry ($m=1$). Lopsidedness is ubiquitous and occurs in stars and gas, in the outer disk as well as the central region. Its typical measured amplitude is high ($\sim 10\%$), making it a common feature of spiral galaxies. The physical mechanisms proposed for its origin include tidal interactions and gas accretion. The lopsidedness has a strong impact on the dynamics and evolution of a galaxy. The central regions of merger remnants also exhibit strong and long-lived lopsidedness. In this talk, I will briefly summarize the observational and theoretical aspects of this exciting topic and the related open problems.

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