400BResearchAssignment2

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1 Introduction

- 1. Define the Proposed Topic: tidal transformation of satellites(M33).

- 2.During tidal transformation of satellites, the internal structures of stars and dark matter would change. Also, the star evolution and dark matter halo evolution happened in galaxy evolution, which we could regard galaxy evolution is contributed by star evolution and dark matter halo evolution. This is why the topic matters to our understanding of galaxy evolution.

- 3.According to current understanding, we know what is going on during star evolution, and how it effect the mass loss rate. But for dark matter, we know it only react with gravitational force.

- 4.The open questions in the field:1.How do stars internal structures and dynamically change impacted tidal transformation during their evolution process. 2.During star evolution, how does star mass loss rate changes? and how does stellar mass loss contribute to tidal transformation. 3.How does dark matter halo change, during evolution process. And how does the change impact on tidal transformation.4.How does the mass loss rate and dynamically change of dark matter contribute to tidal transformation.

- 5.
  - 1.[11pt]article cite Tidal evolution of dwarf spheroidal galaxies and dark matter subhalos Errani, Raphaël July 2019 https://era.ed.ac.uk/handle/1842/36662
  - 2.[11pt]article cite Tidal stripping and the structure of dwarf galaxies in the Local Group Azadeh Fattahi, Julio F Navarro 16 March 2018 https://arxiv.org/pdf/1707.03898.pdf
  - 3.[11pt]article cite The global stability of M33: still a puzzle J A Sellwood, Juntai Shen, Zhi Li July 2019 https://arxiv.org/pdf/1902.07222.pdf

- 6. [scale=2]massprofile.png

2 The Proposal

- 1. a.I have to combine stellar evolution what we learned from 400A and the dark matter tidal evolution to get a result, which could contribute to M33 tidal transformation of satellites.b. I have to combine some result, which we get from class homework, with the journal papers to get the result we need.
- 2.I would use the data and program we got from class and class homework to support the assignment.Then We could get a relation of mass loss rate in M33 during the period.
- 3.The figure come from Homework56 related to M33.