Grading Rubric : ASTR400B Research Assignment 2

Name: [Kowalski,Laine Katherine](https://github.com/lainekkowalski/ASTR-400B-Repository)

**A Introduction 8.5/ 10**

Each of the below points should be a separate paragraph in your introduction.

1. Define the Proposed Topic. 0/1
2. State why this topic matters to our understanding of galaxy evolution. 2/2
3. Overview our current understanding of the topic. 1.5/2
4. What are the open questions in the field? 2/2
5. Cite at least 3 journal papers. Use BibTex for formatting citations 1/1
6. Include at least one figure with caption from those papers to motivate your work. 2/2

**B. The Proposal 7/ 10**

They must answer each of the below questions as separate subsections.

1. What specific question(s) will you be addressing? 1/1
2. How will you approach the problem using the simulation data? Here you should outline the codes you’d need to write. It can be in general terms. 3/5
3. Include at least one figure that illustrates your methodology. 1/2
4. What is your hypothesis of what you will find? Why do you think this will occur? 2/2

**C. Misc. /5**

1. Proper Grammar 1/1
2. Included a bibliography 1/1
3. In Latex and ApJ/MNRAS formatting 2/2
4. On Time/On Github 1/1

**TOTAL** 22**/25**

**Late Penalty:**

* if submitted on due date, but after 5 PM  **(-5 points).**
* Proposals will **not be accepted** after the due date.

**Comments: -2: you are focusing on too many things - mass profile, rotation curve, velocity dispersion, angular momentum. You need to narrow down more. Talk to us. -1: the figure needs to be more relevant to the profiles you are going to compute.**

**A point of clarification: a rotation curve indicates the circular speed as a function of radius, given the mass profile of the galaxy. It doesn’t actually mean that every component is rotating. For example, the halo has an associated rotation curve (Homework 5), but the halo is not rotating at the speed suggested by the rotation curve.**

**What you want to study is the kinematics of the merged halo vs what the MW halo and M31 halo before the merger. So :**

1. **pick two points in time, one before they start to merge (e.g. snapshot 0) and one after the merger (note that you identified when this merger happened already in Homework 6).**
2. **compute the average angular momentum of the MW halo/M31 halo/merged halo at a few different radii (you could make a profile, where you compute this as a function of radius). How would you define the merged MW + M31 halo? How would you compute angular momentum?**
3. **Compare the three results. - Does the merger remnant have the same profile as either of the initial galaxies? Is the profile smooth? If it is different, why might that have happened (recalling that the mass or velocity could be the culprit)?**