**Intro - Page 1**

“In the context of large scale structure..” needs “the” between of and large - or an s on the end of structure?

“A key part of that evolution is that of mutual…” Suggest “A key part of **the** evolution is that of mutual…” gets rid of 2 that’s within a few words of each other

“that it leads to the distortion of the **disks** involved” – do you need to clarify what the disks are here? (Having read on to a later section – 1.1 I now realise you are probably referring to galactic disks - but you may need to explain that here on its first mention?)

“and enhancement in star formation of each system.” Perhaps it should say “in **the** star formation” etc

**Intro - Page 2**

Sentence that begins “in this work” and goes on to say “and with directly comparing to simulations.” Do you mean “and **by** directly comparing to simulations?”

* 1. **What is galaxy**

P35 “About the the SMBH and galactic bulge” - lose the extra **the**

P35 “What this dark matter is, specifically, is still a very well researched topic with many different candidates which we will not explore here.” This seems a bit clunky? Is a simpler way of saying this “Dark Matter is a subject being intensively researched elsewhere and will not be explored here”

**1.2 GALAXY ASSEMBLY ACROSS COSMOLOGICAL TIM**

P36 “Studies at high redshifts reveal that galaxy structure is significantly different compared to the local volume.” Just checking that the singular use (galaxy structure) rather than plural was deliberate?

P38 “In the next section, we will describe how these links are made and the fundamental properties that make this link.” Perhaps say “In the next section, we will describe how these links are made and the fundamental properties that **establish** this link.

* 1. **GALAXY MORPHOLOGY & GALACTIC PROPERTIE**

P38 “A striking distinction in galaxy morphology is been between disk and elliptical galaxies,” Delete the word been or say has been and lose is?

P38 “So, while this classification scheme was **found** to not be a direct evolutionary pathway, each classification was **found** to be indicative of the merging history of a galaxy” Rephrase to avoid saying found twice in the same sentence?

P41 “As a result of this, the current gas mass and density are very low which leads to the SFR being very low” Perhaps say “SFR **also** being very low ?

P41 “However, what is definitive is that the rule of red galaxies are elliptical and blue galaxies are disk galaxies is not ubiquitous” Maybe “However, what is definitive is that the rule **that** red galaxies are elliptical and blue galaxies are disk galaxies is not ubiquitous”?

P44 “? It transpires that the effects of a galaxy merger or galaxy interaction are dependent on the underlying parameters of the galaxies themselves.” Perhaps should read It transpires that the effects of a galaxy merger or galaxy interaction **is** dependent on the underlying parameters of the galaxies themselves.

* 1. **CATEGORISATION OF MERGERS**

P44 “Key parameter to the destruction…” Maybe should be “**A** key parameter etc”

P44 “The impact parameter also does have a lot of influence over the final etc” maybe say “ also has”

P44 “but not enough to completely dramatically increase star formation)” Do you need the word completely?

P45 “however, we focus on the binary definition of wet and dry mergers.” Should this read “we **will** focus… etc”

P45 ” Depending on the classification of an interaction leads to specific outcomes for the interacting galaxy system.” Just asking you to double check that this sentence means what you want it to say.

P46 “Therefore, it has been theorised that such mergers could be a much larger driver of cosmic star..etc” Do you need to provide any sources for the theorisation mentioned here?

**1.5 EFFECTS OF GALAXY INTE RACTION**

P47 “The idea of two or more galaxies interacting and the effect that it would have had upon galaxy formation and evolution was thought to be minute.” Sentence does not make sense?

P47 “As stated previously, they have multiple affects (should this be effects?) upon the systems undergoing the interaction. The specific effects of interaction lies (“rests” may be a better word?) on a host of parameters, (should there be a full stop after parameters followed by a capital W for We at start of a new sentence?) (W)we have discussed the mass ratio and gas content and mentioned the impact parameter but there is also the orientation of the interaction, the relative sizes of the galaxies and the point in the dynamical history of the interaction we are observing.”

**1.5.1 Morphological Distortion: Tidal Features**

P47 “It is important to start here with pointing out” Maybe say “by pointing out”?

P47 “the gravitational potential changes” Just checking this is a thing and what you meant

P48 “As the internal galaxy rotation and bulk motion in of the galaxy’s orbit in the encounter must match for this shearing of material to occur” Did you mean in of?

P49 “Shells, on the other hand, are formed about galaxies and can be present ETC “ Do you mean “Shells, on the other hand, are formed around galaxies and can be present etc “ Just checking again

P49 “This then forms a ste

llar stream, which overtime condenses to a cloud etc “over time is 2 separate words in this context?

**1.5.2 Star Formation Enhancement**

P49 “As stated previously, it is often etc” Only because in the previous paragraph of the previous section you wrote “As we have stated in previous sections,” I am going to suggest you change the start of this section to “As noted earlier, it is often etc”?

P51 “It is therefore easy to see that due to an interaction the torques and gravitational forces etc” Needs a comma after the word interaction?

P51 “While this is a simple explanation, and an easy idea to hold about driving the increase in star formation in interacting galaxies. So, what drives these? “ 1) The word while is not needed at the start of the sentence. 2) What drives what? Do you mean “So what drives the increase in star formation”?

P51 “In fact, it is the same basic principle, except due to the distortion of the disk itself” - what basic principle are you referring to here? I think you mean the explanation given a few sentences earlier regarding gas clouds falling into cores etc but you did not describe this as a principle? Also does saying “except due to the distortion of the disk itself.” Work in that sentence?

How about the below as an alternative?

This is a simple explanation, and an easy idea to hold about driving the increase in star formation in interacting galaxies. So, what drives star formation? In fact, it is the same basic explanation, with an exception due to the distortion of the disk itself

1**.5.3 Ignition of Active Galactic Nuclei**

P51 “The presence of an AGN in a galaxy is often very hard to miss.” Maybe better to leave out the word often

P52 “These jets are highly luminous, and are what we observe in the optical, infrared and X-ray. (Is the optical, infrared and xray or should it just be “what we observe in optical, infrared and xray?)

P52 There has been discovered two populations of AGN: Should this be “Two populations of GN have been discovered: ”

P52 “While, at first, thought to be two distinct types of AGN” , Maybe should read “While at first thought to be two distinct types of AGN,”

Still P52 - Also if there is a push to unify these AGN populations should you be stating in the next sentence “This unified population is related to the structure of material etc”- If it is still separate? Maybe best to say “These populations or if unified, this population is related …etc”

P52 “About the accretion disk, “ Is About the right word or should it be Surrounding? Also in this paragraph

P52 “This leads us to only observing narrow line emission (Seyfert 2) when we observe the AGN through the torus and observing both narrow and broad lines of emission not viewed through the torus.

Alternative words?

“This means we only see narrow line emission (Seyfert 2) when we observe the AGN through the torus but observing both narrow and broad lines of emission when we do not view through the torus.”

P52 “a surge of which interaction provides (Hopkins et al., 2008, provides an excellent summary… etc” – Two “provides”

1.5.4 Quenching of Galactic Systems

P53 “Through a galaxy interaction, as discussed, there is significant movement …etc” No need for the “as discussed”?

P53 “will change from highly blue to highly red.” Would the word deep Blue / red be better then highly?

P53 “This rapid quenching of systems is different to what is expected in the field.”Which Field is being referred to here?

P53 “even if a galaxy had stopped forming stars previously it is able to increase in star formation again and use the remaining gas entirely …”

Maybe should read “even if a galaxy had previously stopped forming stars it is able to commence star formation again and use the remaining gas entirely”?

P54 “These winds can, similary, drive out (Cicone et al., 2014; Cheung et al., 2016; Baron et al., 2018) and cause the cessation of star formation” What can the winds “drive out”? Is it the gas that is needed for star forming?

**1.6 IDENTIFYING INTERACTING AND MERGING GALAXIES**

P54 “when we observe interacting galaxies in comparison” Maybe say “when we observe and compare interacting galaxies

P54 “However, we are only able to so fully understand these…etc “ Leave out the word so or say “so comprehensively understand these etc”

P55 “therefore 3D distribution, of galaxies within images it was very difficult …etc “ Neds a coma either after galaxies or images?

P55 “As machine learning algorithms began to be used in galaxy classification, this problem spilled over” – Spilled over into what?

**1.7 This Thesis**

P57 “To fully answer these questions about galaxy interaction, we require three things: Maybe say three components are required rather than we need three things?

P57 “In this thesis, detail two pipelines which achieve these goals.” Should be “This thesis

P57 “largest interacting galaxy catalogue to date from combining …etc” maybe say “through combining …etc”

P57 “We will then use this catalogue, in Chapter 3, with cross matches to existing ancillary catalogues and conduct our own inferences about the relationship between galactic parameters and underlying processes” – David the way this reads makes it sound like you intend to do it rather than you have already done it? May need to re write this a bit?

P58 you say “finally in chapter 4 and then later in the paragrapgh you again say Finally in chapter 5. Need to lose the word finally before the chapter 4 note