From Prof McLure:

Page 10 – you quote the value of the Hubble constant as 67.4 +- 0.5, add footnote or extra sentence to highlight that this doesn't reflect tension with distance ladder estimate of 73.

Page 33 – cos theta missing in equation linking flux density and specific intensity?

Page 41 – add sentence indicating that the functional form of A_lambda/AV with wavelength holds information on the dust grain size distribution.

Page 54 – add a couple of sentences to explicitly state why z=4.88 was the final choice for the simulations – seems like two or three different factors went into this decision.

Page 70 – add a couple of sentences discussing the small FOV of the ELT and the potential impact (if any) of the extreme AO observing mode that the ELT will have (is it as simple as scaling by exposure time and the ratio of the collecting areas in reality?)

Page 85 – add a figure showing the binned-up continuum and the resulting fit used to calculate the EWs. You could also over-plot the UV spectral slope (beta) fit.

Page 91, Fig 3.2, z=6 and z=7 labels in bottom panel inset seem wrong way round? Also, where are the boxes for the AGN models in the top panel?

Page 94 – dynamical(stellar) and stellar mass estimates are different by a factor of 20 – only consistent because of the order of magnitude error on the dynamical estimate. Calculate what the stellar mass has to be in order to place the galaxy on the FMR and provide an additional comment.

Page 122 – should quote all the imaging depths in the same diameter aperture to ease comparison.

Page 128 – dust mass/temperature fitting.

- Comment on impact of re-doing the fits treating the 90-micron limits as simply a flux detection and an error (even is the flux is formally zero or negative).
- Calculate how much beta would have to change in order to shift the temperature of COS-3018 up to a higher value (say 35K or 40K).

Typos

Page 14 "than the (comoving)" to "the (comoving)"
Page 15 – equation 1.19, should be c_s^2 instead of c_s
Page 20 – t_cool should be propto T^-1/2
Page 55, "recombination event that take" to "recombination events that take"
Page 56 – include units of collisional emissivity
Page 58 – "direction parallel" to "direction perpendicular" ?
Page 65 – Fig. 2.6 caption "Histogram of" to "Two-dimensional histogram of"

Page 69 – HARMONI won't be operational until at least 2028
Page 84 - "this paper is as follows" to "this chapter is as follows"
Page 90 - Section 3.4.1 heading, "iv" to "IV" – change from i to I and ii to II etc is global in all section headings.
Page 94, "an SMC" to "a SMC"

Additional comments from Prof Sijacki:

Page (v) Please re-write the second half of the summary into a coherently flowing text and stick with either "I" or "we".
Page (xxvii) Please put the correct explanation of the JWST acronym (no jokes please!)
Page 6 (and throughout the thesis) footnote positions should be before the comma/fullstop and in the footnote after the number there should be a space before the text starts.
Page 9 Lambda causes the Universe to not only expand but leads to accelerated expansion; please re-phrase
Page 10 In done for the Hubble constant please quote various Omega values with the appropriate error bars
Page 10 the text on the homogeneous and isotropic Universe on small and large scale at late cosmic times somewhat confusing. This was clarified in the viva, please re-write.
Page 11 footnote, this is too strongly worded please re-phrase
Page 12 "all good things come to an end" please re-phrase
Page 15 when we talk about weak electromagnetic interactions, which dark matter model you have in mind?
Page 17 (and elsewhere) when mentioning dynamical quasi-equilibrium you probably want to say virial equilibrium
Page 18, please consider a different range of "typical" halo masses as discussed during the viva
Page 19 (and elsewhere) the transition of the cold mode to hot mode accretion and the relevance of hot mode accretion at $z < 2$ comes mostly from semi-analytical papers. Modern hydro simulations indicate that $10^{12} M_{\odot}$ haloes have both a hot atmosphere and their central galaxies are fed from the cold flows. These haloes are in place already at $z \sim 6$!
Page 28, 29 Figure 1.5 and discussion around it is way to technical for the introduction and does not belong there. Please provide only brief qualitative summary and move this material to Chapter 4 or a new Appendix
Page 31 there is a typo in the caption of Figure 1.6 $T_{IGM} \leftrightarrow T_{atm}$
Page 33 please consider rephrasing "madness"
Page 34 please fix style "I" or "we"
Page 46 the outlined key science questions and thesis chapters 2-4 need linkage
Page 54 typo in caption of Figure 2.1 density → overdensity
Page 58 "Bremsstrahlung" or "bremsstrahlung" (use consistently throughout the thesis)
Page 58 fiends-of-friends → Friends-of-Friends
Page 59 typo in Figure 2.3 2018→2019
Page 63 Chiang 2019: upper limits on the diffuse IGM contribution – how is this compared to simulations? Which data point is this in Figure 2.3. Please elaborate.
Page 64 and 79 discuss a bit more the result sensitivity to the choice of half critical self-shielding density and the range of densities probed in simulated filaments as discussed

during the viva. Discuss the caveats of observing proto-cluster regions and actually detecting "genuine" Lyalpha emission from filaments
Page 79 please remove Acknowledgements
Page 91 fix symbol labels on Figure 3.2
Page 92, 93, 95, 98, 100, 102, 125, 127, 136, 139, 143, 146 (and elsewhere) in sub/section titles e.g. "Neiii" → "NeIII" Please fix all of these
Page 97 Figure 3.5 and the relevant text discussion. Discuss the caveats regarding the departure from the FMR as discussed during the viva
Page 106 please remove Acknowledgements
Page 131 Figure 4.3 and the relevant text discussion and conclusions drawn please discuss caveats as detailed during the viva (please see Prof. McLure's comment above)
Page 148 as the spatially resolved emission is complex please explain the relevance and the purpose of Cloudy modelling
Page 154 please remove Acknowledgements
Page 159 would be good to link the outlook to the key science questions outlined at the beginning of the thesis and present your view where most progress is expected to happen in near future both theoretically and observationally (i.e. the big picture!)
References for all preprints please add journal to which these are submitted; a few books references seem incomplete (editors, publishers etc; e.g. Al Sufi, Copernicus)
General note: as clarified during the viva please explain better who run simulations, analysed simulations, collected data, reduced data, analysed data, performed main analysis and mainly drafted the papers