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Probing the darkness : the link between baryons and dark matter

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Propositions

Probing the darkness: The link between baryons and dark matter

1. Galactic winds reduce the total mass of haloes by up to 20 per cent, which in turn reduces the halo mass function by a similar amount. (Chapter 2)
2. The change in halo mass due to outflows alters predictions for cluster number counts by about as much as the difference in cosmological parameters measured by the WMAP7 and Plank satellites. Therefore, this effect must be accounted for in precision cosmology. (Chapter 2)
3. Galaxies align much better with the local distribution of dark matter than with their host haloes. (Chapter 3)
4. The alignment of nearby galaxies depends strongly on the subset of stars that are used to measure galaxy orientations and it is systematically weaker than the alignment of dark matter haloes. (Chapter 4)
5. Galaxy-galaxy weak lensing should be used as an additional constraint for hydrodynamical cosmological simulations. (Chapter 5)
6. Every astronomy department, if not every group, would greatly benefit from hiring a computer scientist.
7. Part of the effort of making better simulations should be devoted to making them easier to compare with observations.
8. It is very difficult to find similarities between scientific papers and commonly known popular works of writers and movie directors. Therefore, any reference to those works in the titles of scientific papers should be avoided.
9. Publications are the currency upon which the business of research is based. Some currencies are stronger than others but ultimately it is the quantity that counts.
10. The health of an institute can be measured by the number of people available for playing beach volleyball on a sunny and warm late summer afternoon.
11. Human relationships are like KLM frequent flyer membership: the points that you gain expire after some time and need to be replenished (and you really have to fly a lot to get gold).
12. There is no limit to the number of times that I can misspell alignment.
13. A paper can be exhaustive, swiftly done, or of high quality, but only two of these at the same time.