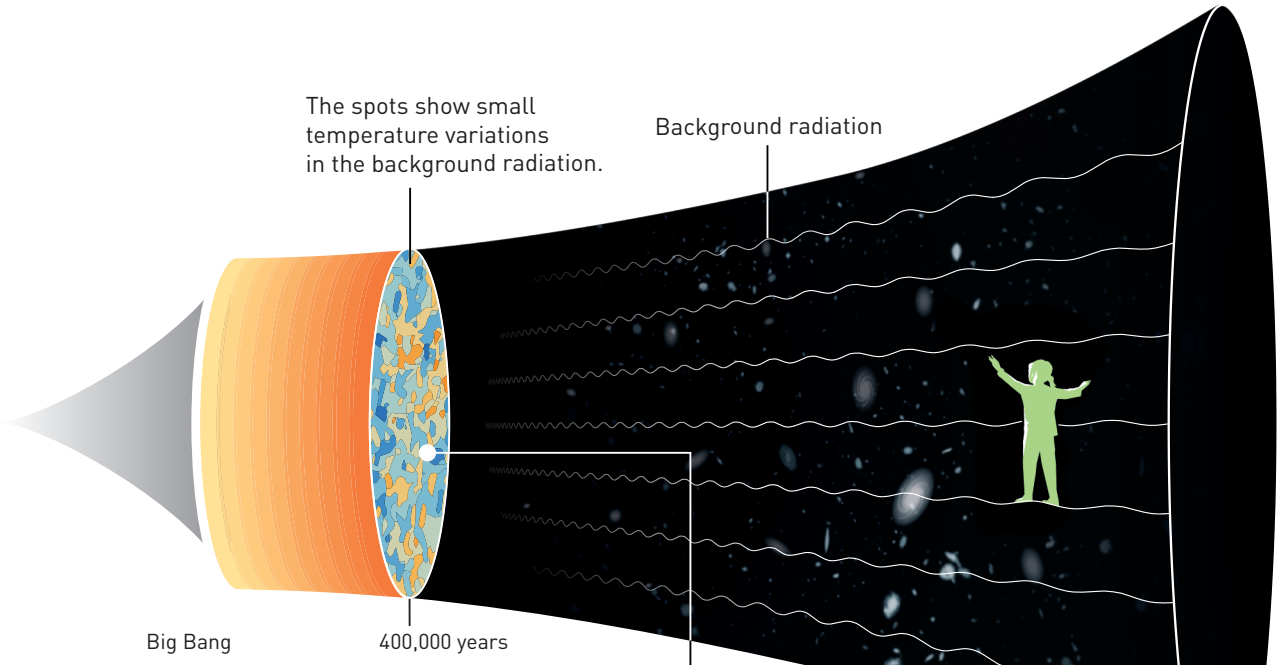
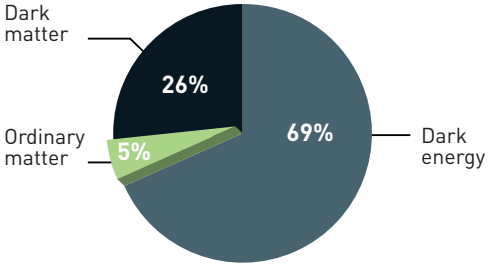
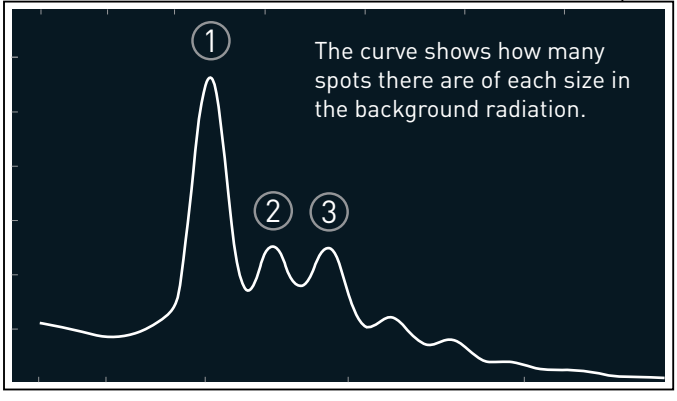


SECRETS IN THE BACKGROUND RADIATION

The universe was extremely hot and dense in its earliest moments, the Big Bang. Since then, the universe has been expanding, getting larger and colder. Almost 400,000 years after the Big Bang, the initial radiation began to travel through space. This radiation still fills the cosmos and, coded into it, many of the universe's secrets are hiding. Using his theoretical models, James Peebles was able to predict the shape of the universe and the matter and energy it contains (the below curve). His calculations were a good match with later measurements of background radiation.





1. The first peak shows that the universe is geometrically flat, i.e. two parallel lines will never meet.
2. The second peak shows that ordinary matter is just 5% of the matter and energy in the universe.
3. The third peak shows that 26% of the universe consists of dark matter.

From these three peaks, it is possible to conclude that if 31% (5%+26%) of the universe is composed of matter, then 69% must be dark energy in order to fulfil the requirement for a flat universe.