

## **Astronomy Talk 14<sup>th</sup> November 2023**

### **New Views of the Universe with the James Webb Telescope**

Robin Catchpole from Cambridge gave us this talk on Zoom only. There were 64 attending. Robin started by covering the launch on 25/12/21 and a description of all the components. The Ariane 5 rocket was so precise that little fuel was needed for course correction, making it possible for JWST to run for 20 years rather than the planned 5.

JWST is looking more into the infra-red than Hubble, which enables it to see very different things. It has a composite mirror has 16 segments (6.5 m diameter as opposed to Hubble's 2.4 m), and one of these had an impactor in May 2021. It seems not to have affected the telescope, but no doubt there will be more.

We then moved on to things JWST has seen. It has very powerful spectroscopic capabilities, and some planets have been detected to have interesting molecules, e.g. possibly dimethyl sulphide on K218b – a possible indicator of life.

After looking at a few planets and protoplanets, we moved on to galaxies, molecular clouds, and star formation.

Lastly, we looked at deep sky objects. We looked at gravitational lensing, and the existence of supermassive black holes in the early universe only 600 million years after the big bang, with a possible explanation for their existence. JWST can reach back to around 400 million years after the big bang, so we look forward to many discoveries that will clarify our understanding of the evolution of the universe.