

Astronomy Talk 16th April 2024

3 Short Talks

This hybrid Zoom talk was given in person by the ex-chairman, James Fradgley. 11 attended in the hall and 36 on Zoom, making 47 in total.

The first talk looked at the Sun's nuclear reactions that turn hydrogen into helium. This is principally the proton-proton reaction, or P-P reaction. The emphasis of the talk was on the first step of this, the collision of two protons, and one of them undergoing an inverse beta reaction to become a neutron, thus making a deuteron. Both events are extremely unlikely, which is why stars last such a long time.

Secondly, we covered what the earliest stars could have been. They would have been far more massive than stars forming today, being made more or less purely from hydrogen and helium. Consequently, they could have been sufficiently massive to have been the seeds for the supermassive black holes (SMBH) that are being found earlier in the universe's history than was expected.

The third talk was about neutron stars: what are they made of? The nature of Fermions and Bosons explains some of the possible characteristics of neutron stars, but we really don't know much about the interior of these objects. Some of the possibilities were covered, and finally the use of neutron star collisions which give us information about their structure from the gravitation waves they produce, as detected by the Laser Interferometer Gravitational-Wave Observatory (LIGO).