

The talk at the August meeting was given by Chris Starr of Wells & Mendip Astronomers on the subject of the planned mission to the metal rich asteroid Psyche. Chris took us through the main theory of how the inner – rocky – planets and the outer gas giants were formed and the “transition zone” that is the asteroid belt. He then looked at the specific examples of Vesta and Ceres visited by the Dawn mission between 2011 and 2015. Vesta appears to be an early remnant of a protoplanet while Ceres is much more icy and was probably formed further out, beyond the “frost line”, where the gas and ice giants formed.

Chris went on to describe the Nice model of the movements of the planets caused by the early wandering of Jupiter and the brake put on its inward motion by Saturn. It’s likely that Ceres was a victim of the bullying behaviour of its giant neighbours and ended up in safe refuge in the asteroid belt.

Asteroid 16 Psyche is quite a different world, though. Its density is more like that of the Earth or Mercury and is considerably denser than our Moon. It may have formed directly as a dense metal rich object or, more likely, is the remnant core of a previously differentiated protoplanet.

A mission to observe the asteroid close-up is planned but it has been delayed by late delivery of software (probably no surprise) and to insufficient testing. With a Mars fly-by in the programme, the next launch windows are in 2 and 4 years time.

As ever, a number of very intelligent and incisive came from the members which were answered equally by Chris. Thanks to him for an excellent and interesting talk. Perhaps we should visit the asteroid belt more often!

Many thanks to all those that helped with the breaktime refreshments and especially to Sue and her rather marvellous cakes.

After the break we discussed September’s meeting which will be the Gadgets & Gizmos evening. This is really a “show and tell” session where all forms of astronomical widgets are welcome. Whether they be bits of real equipment, software or even a way of working – all will be appreciated. After the main session we hope to have an observing session out in the field when Saturn and Jupiter will be observable if the clouds permit. If not, we’ll set up a few telescopes in the hall and the owners can describe how they’re set up and operated.

We’re also looking at an Outreach session with Ham Hill Country Park. This will probably be from the Long View car park which has a primarily west facing aspect so we’ll probably try to do in early December when the main planets are in the west after dusk. We haven’t had any contact with the usual primary schools as yet but we’ll chase them when they’re back in a few days time. We are also in conversation with the Cricket St Thomas hotel to do some sessions with their guests, similar to those done by the hotels in Dunster during the Exmoor Dark Skies festival. Incidentally, the Exmoor Dark Skies Festival will be held between 13th and 30th October th2022. There are a large number of events this year and details are at

<https://www.exmoor-nationalpark.gov.uk/enjoying/stargazing/dark-skies-festival> .

It was suggested that we look at the possibility of visits to the Herschel Museum in Bath and the Norman Lockyer observatory in Sidmouth. Terry will contact both to see if we can arrange tours which will be at the appropriate level.

Adrian Zielonka has give us advance warning that the Moon will occult (pass in front of) Uranus on 14th September. Uranus will disappear behind the moon at around 22:30 BST but will only be about 10 degrees in altitude at that time and be at the bright limb. Reappearance from the dark limb (the moon will be 78% and waning) will be at about 23:18 BST at an altitude of about 18 degrees. Uranus subtends about 4 arcseconds so it should take about 60s for it to fully appear from behind the moon's limb. It will be fairly bright (mag 5.7) so could be a nice subject for a movie with a high resolution planetary cameras. It will also be visible in binoculars, though, with the planet appearing at the two o'clock position on the Moon's limb. It will need a decent eastern horizon, though!

Terry showed a number of images from both hemispheres having made some use of the (slightly too) dry weather of the preceding week! A series of daily images of the Sun showed just how dynamic our star really is. The rotation of spots along with the Sun was very obvious as well as the rapid changes in the spots themselves. The Sun is only just getting going after Solar Minimum but it's already very busy.

Bud followed up on the "shock horror panic" story in (where else) The Sun in March when its headline proclaimed that a rogue rocket would "change the face of the Man in the Moon". Well – the impact site has been found by the Lunar Reconnaissance Orbiter spacecraft and the impact craters are about 20 metres across and on the farside of the moon. Not much of a change to the nearside Man in the Moon! See <https://www.nasa.gov/feature/goddard/2022/nasas-lunar-reconnaissance-orbiter-spots-rocket-impact-site-on-moon> for all the gory details.

Final reminder that September's meeting will be Gadgets & Gizmos, followed by (weather permitting) an observing session.