How Does the Sun Work?

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In ancient times, the god Helios was imagined as driving his golden chariot across the sky each day from East to West, drawn by four horses. But what was in the chariot, making it shine so brightly? Was it coal, burning in the air? We consider this, and other possible sources of the Sun’s energy, but none of them have the required endurance to keep it shining long enough. It was only in 1929 that it was first realised that nuclear reactions are the source of the Sun’s power. We consider these reactions and some consequences: why has the Sun shone for five billion years, and it probably has another five billion years left. We can monitor these reactions deep inside the Sun from here on Earth, but in the latter part of the 20th century, there were fears that the Sun’s furnace was dying out! Fortunately, this problem was resolved before the tabloid newspapers spread fear among us all.

If time allows, we also discuss sunspots, and the solar cycle.

Suitable for school students from year 11 upwards, also public audiences.

Vincent Smith taught and researched in Physics at the University of Bristol for over 40 years (and received a medal from the University to prove it!) In his retirement he is still active, taking part in research with the Compact Muon Solenoid experiment at the Large Hadron Collider at CERN. He also continues to give talks to schools and other audiences about various topics in Physics, from “Fun with Magnets” for primary children to “Dark Matter” for A-level students. He is also a trained guide for visitors to CERN. He was delighted to receive an MBE for “Services to Physics” in the Queen’s Birthday Honours, 2004, and the IOP Phillips Award in 2020.