



## PHYSICS AT WORK

### CAVENDISH LABORATORY

### ASTROPHYSICS RESEARCH GROUP

<http://www.mrao.cam.ac.uk>

### ASTROPHYSICS

Astrophysics is the science of applying principles of physics to the understanding of the universe and the things that make it up – planets, stars, galaxies and much else. It is literally the furthest-reaching of all sciences. Astrophysicists are interested in the entire universe apart from the Earth!

In the Astrophysics Group at the Cavendish Laboratory we use physics in lots of different ways to try to answer the questions everyone wants to know:

- Where did the stars come from?
- How was the universe born?
- Will it ever end?

Some of our work applies mathematical ideas about gravity in order to understand how light travels close to black holes.

We use the quantum theory of superconductors to build sensitive receivers, capable of detecting the radiation from distant galaxies.

We also build telescopes, some capable of seeing detail on the surfaces of stars, others that show what the universe looked like when it was only 1/30,000th of its present age, and still a fireball after the Big Bang.

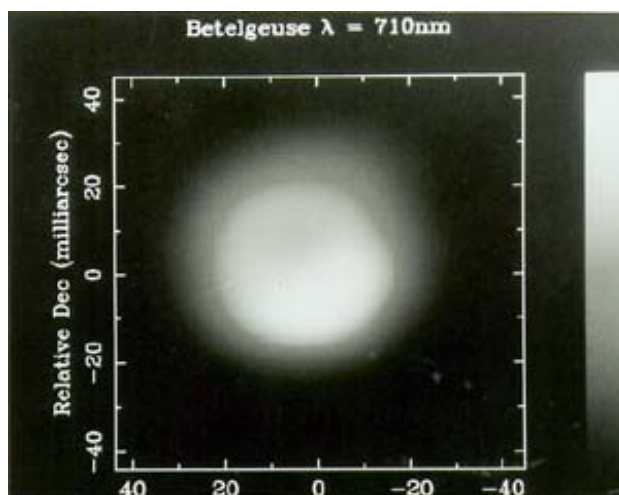


Figure 1. The surface of the nearby bright giant star Betelgeuse situated above the 'belt' in the Orion Constellation. It has 'star spots' 50 million km across. The sun will eventually end its life as a red giant like this.



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Figure 2. Telescopes at the Roque de los Muchachos Observatory on La Palma in the Canary Islands.

Figure 3. A picture of a small part of the universe – about a million light-years across! – when the universe was only 300,000 years old. It is now about 10,000,000,000 years old.

