

Large Hadron Collider

Transcript: Clip from Horizon: Dancing in the Dark BBC TWO

DAVID MITCHELL

This is CERN, the world's biggest physics lab, home to the Large Hadron Collider, the largest particle accelerator on the planet.

It's here where scientists investigate what stuff is made of... by smashing it apart. Protons are fired around its 27-kilometre-long circular tube in opposite directions at nearly the speed of light, before being smashed together.

Waiting to trawl through the debris resulting from those collisions are two-thirds of the world's particle physicists. One of them is Dave from Birmingham.

He is in charge of one of the huge detectors which record each and every collision.

PROFESSOR DAVID CHARLTON

I have to admit, I come down here a few times a week and pretty much every time I come in, my jaw still drops when I see ATLAS in front of me. I mean, it's incredible that we built this detector and that we're able to operate it.

So the whole detector itself is about eight or nine storeys tall, and so we're about halfway up at the moment, so four or five storeys above the base of the detector.

The total weight of the detector is about 7,000 tonnes, which is about the same as the weight of the Eiffel Tower. While it might weigh the same, the ATLAS detector shares few other characteristics with Paris's most famous flagpole.

DAVID MITCHELL

Fitted with 100 million detectors, it produces the equivalent of a digital photograph 40 million times a second, providing Dave and his team with a permanent record of the precise nature of each particle's demise.