



TRANSCRIPT «VNR HESS»

TC In: 00:03:00:00

TC Out: 00:08:09:00

Program duration :05'09''

Voice Over

Tc in: 00:03:09:00

Heidelberg, the Max Planck Institute. Gathered around European project HESS, researchers in nuclear physics backed their studies on the astronomy of gamma rays.

ITV Heinrich J. Volk

Tc In :00:03:20:00

'The HESS project is an enterprise of high energy astrophysics, for which we use optical telescopes for studying the most energetic processes of the universe.'

ITV Werner Hofmann

Tc In:00:03:33:00

'The gamma rays we observe in this fashion are generated by very particular celestial objects, like supernovas for instance. With our telescope, we can exactly measure the directional energy of the radiance, and hence image the sources and understand better and precisely what is happening in these sources.'

Voice Over

Tc In: 00:04:54:00

From the earth, scientists scrutinise the atmosphere with their telescopes. These real detectors are capable of determining the original direction of the gamma rays emitted in the universe.

ITV Paula Chadwick

Tc In:00:04:05:00

'When a gamma ray comes into the upper atmosphere, it produces a cascade of particles. When that happens, we get the light equivalent of a sonic boom. If you take an aeroplane, and it moves faster than the speed of sound, you get a Bang! Now if you take a particle, and if it moves faster than the speed of light, you get a flash of light, and that's called Cherenkov light, named after the person who discovered it. And so, what we do is we actually detract this flash of light. It's blue, it lasts a few millionth of a second, and it's very faint, it is about one thousandth of a starlight.'

Voice Over

Tc In: 00:04:42:00

One of the great advances of the HESS project: one of the first negatives of gamma rays. Telescopes, equipped with ultra-precise cameras, will allow us to learn more on the formation of the universe, by analysing the gamma radiance, and this, until the dawn of days...



ITV German Hermann

Tc In: 00:04:58:00

'The HESS principle is founded on telescopes that include reflectors of an approximate size of 100 square meters, which will focus the light of the shower of particles, so-called Cherenkov light, on a camera situated in the focalisation field of the telescope. These are special cameras that allow for an exposure time of only a sixteenth of a billionth second, which means that we are able to photograph these exceedingly short flashes of light.'

Voice Over

Tc in: 00:05:24:00

One of the determining elements of this project was the focusing of this camera.

ITV Michael Punch

Tc in:00:05:30:00

"Each pixel in this camera is this size, it's a photomultiplier, it's a photosensitive material and when each one photon hits the sensitive material, most of the time it produces an electron, a single electron, which is accelerated in an electric field and hits another layer and bounces on and makes a cascade. So we can make a measurable pulse of electricity, of current at the end of this. It gives us an image of what we're looking at in the atmosphere."

Voice Over

Tc in: 00:06:00:00

The HESS project regroups researchers from Paris, Gif-Sur-Yvette, Durham, Berlin, Heidelberg, Hamburg, Bochum, Dublin, Prague and Pochefstroom.

ITV German Hermann

Tc In: 00:06:37:00

'The telescope system comprises different components that were manufactured by different groups. Hence, the camera itself: the electronics of cameras was manufactured by the French colleagues in Paris. As for the photo multipliers and high tension systems, we supplied, calibrated and tested them in Heidelberg, then delivered them to France for assembly in the cameras; the reflectors were manufactured by Armenian and Czechoslovakian firms and were tested here in Heidelberg, then mounted in the telescopes in Namibia.'

Voice Over

Tc in: 00:07:00:00

Located in Namibia, the five telescopes manufactured within the framework of the HESS project are capable, through their geographical situation, to scrutinise the very core of our galaxy.

ITV Brunno Khelifi

Tc In: 00:07:11:00

"The first thing that we discovered is a new sky that was previously completely unknown to us. According to the objects we observe, we want to study different phenomena. For instance, for far-away objects that are outside the galaxy, we try to understand how gamma rays propagate to the earth. On the other hand, for such objects in the galaxy as dead stars or neutron stars, we try to understand what happens around and in these objects. How these particles are accelerated. Our telescopes have only worked for a year and a half; hence we are now really starting to produce our first scientific results, which are most promising."

DDB GROUP BELGIUM *FocusEurope*

Rue Saint-Hubert 17
1150 Brussels - BELGIUM
Stéphane De Swaef
Tel direct +32 2 761 20 12
Email: s.deswaef@ddb.be



Voice Over

Tc in: 00:07:54:00

The HESS project is a finalist of the Descartes Prize 2005 for Excellence in Scientific collaboration awarded by the European Commission.

Tc out: 00:08:09:00

International Version

Tc In: 00:09:00:00

Tc Out: 00:14:09:00

DDB GROUP BELGIUM *FocusEurope*

Rue Saint-Hubert 17
1150 Brussels - BELGIUM
Stéphane De Swaef
Tel direct +32 2 761 20 12
Email: s.deswaef@ddb.be



B Roll

ITV Heinrick J. Volk
00:14:32:00

ITV Werner Hofmann
00:14:47:00

ITV Paula Chadwick
00:15:09:00

ITV German Hermann
00:15:45:00

ITV Michael Punch
00:16:12:00

ITV German Hermann
00:16:45:00

ITV Brunno Khelifi
00:17:20:00

Building, scientists, sky pictures, telescope images
00:18:00:00

Animation
00:19:10:00

Map
00:20:30:00