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## NEWS

# Newsmaker: The price of beer and the Higgs boson

7 July 2012 18:19



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It's too tiny to be seen with the most powerful microscope, yet its monumental discovery this week sent the scientific world into an ecstatic frenzy.

Websites and media companies across the globe dedicated lots of space and hours of airtime lauding the discovery of this invisible new baby called the Higgs boson.

The boson is explained by Cern, which conducted the massive experiment to find it, as "a proposed elementary particle that interacts with the tiny particles that make up atoms and weighs them down so that they do not simply float around space at the speed of light".

The Higgs boson gives mass to other particles.

Its discovery was hailed as "having put particle physics on the threshold of a new era", ushering in the dawn "of the new physics that is just over the horizon".

Teams of scientists from six South African universities participated in the Cern programme, which announced the discovery this week.

The SA-Cern programme was selected by the department of science and technology as one of its global large-scale infrastructure projects.

But one can't stop wondering why ordinary folk should care about the existence of particles they cannot see. Does the discovery affect the price of bread or, even more critically, beer?

Professor Bruce Mellado, part of a team of senior scientists working on the project in Geneva, Switzerland, explains why.

"First of all, the physical meaning that is interesting for me is that it helps us move forward in understanding nature."

He said the development of much of today's technology began with the discovery of now-familiar particles like the electron – which lead to many developments, including treatments for cancer.

Mellado, who has served stints at various universities across the US and Europe, will be taking up the position of associate professor in the School of Physics at Wits University next month.

"The discovery of the Higgs boson has meaning from the point of view of the physics of science. But in order to get there, you are producing a tremendous amount of benefit to society," he says.

The Higgs boson is named after Professor Peter Higgs, a British physicist.

In 1964, Higgs and five other theoretical physicists proposed the existence of an invisible field lying across the universe and giving particles their mass.

But why has it taken so long to find it?

"The primary reason experimentally it has been difficult is that science did not have instrumentation to go into high energy like we have today," Mellado said.

Mellado joined the Atlas team working on the experiment in 2001 at the Large Hadron Collider, a 27km scientific instrument spanning the border between Switzerland and France, built about 100m underground.

Inside it, two beams of particles called hadrons, which are smaller than atoms, travel in opposite directions inside the circular accelerator, "gaining energy with every lap".

Physicists crash two beams of hadrons into each other head-on at very high energy and analyse the resulting particles using special instruments.

Mellado focused on the development of techniques to search for the Higgs boson in several "decay channels".

He said society would benefit from this massive discovery if more young people took up careers in science, which he conceded did not pay all that well.

"Making money is good. However, true happiness is not related to what you can buy. True happiness is related to what you can understand," he said.

"The contribution of a person to society by the betterment of science is a feeling that you can't buy with money. I think it's a wonderful feeling because you know you have left an interest; you have left a contribution."

## TALKING POINT



### Hawks won't comment on Al-Qaeda probe report

The Hawks have declined to comment on a report that police and the State Security Agency (SSA) monitored training of al-Qaeda "terrorists" in South Africa without taking action.

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- It's a disgrace that someone of her stature doesn't pay her bills
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- Madikizela-Mandela is always in the news for the wrong reasons

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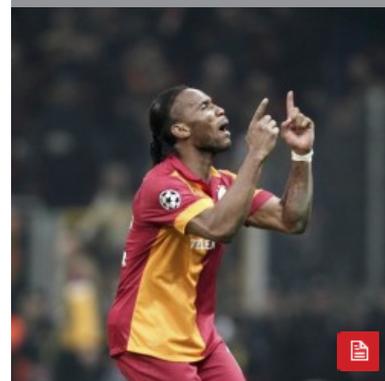




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**City Press** @City\_Press: RT @carienduplessis Statement on #Guptagate report: Radebe has received the report

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**MAY 12 2013**



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Cpt: 12 - 20°C



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