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Wits Physicists Contribute To Large Hadron Collider



By Natalie Simon | SA Breaking News – Thu, Sep 5, 2013

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Wits Physicists Contribute To Large Hadron Collider

Johannesburg – It made history in 2012 when the Large Hadron Collider, considered one of the great engineering milestones of mankind, discovered the Higgs boson: the particle responsible for the not insignificant task of giving mass to matter in the universe. Now, University of the Witwatersrand physicists have reached an important milestone in the world of physics and made the first South African contribution to the world's most powerful particle accelerator, the Large Hadron Collider at the European Organization of Nuclear Research (CERN).

Physics PhD student Robert Reed designed a High Voltage (HV) board which was successfully integrated into the Collider's system on Monday.

The HV board that Reed has designed are used in new mobile testing equipment – a mobile drawer integrity checking system – and its main function is to produce high voltage accurately and reliably. The head technician of the School of Physics, Charles Sandrock coordinated the delivery of electronics components and the production of the board by the local South African electronics industry.

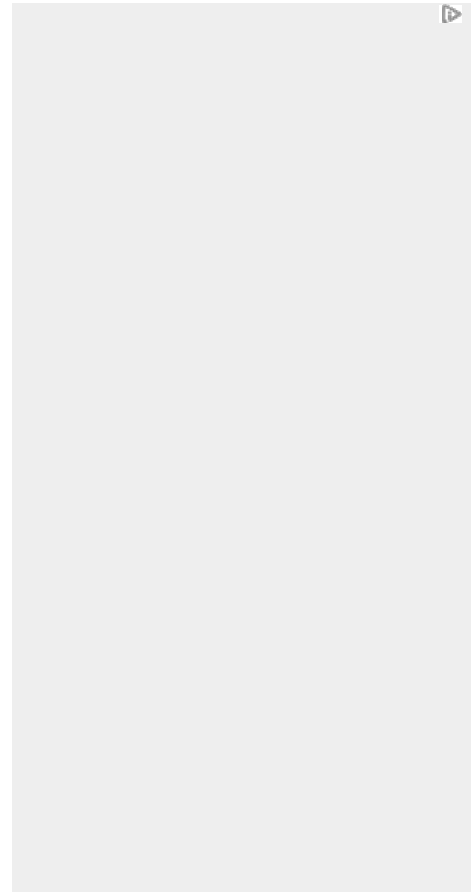
The HV board is used in the ATLAS detector which is a part of the Large Hadron Collider.

“On the ATLAS detector you have these drawers of electronics that do all the filtering of the raw data that comes out of the detector. These electronics have to be verified and checked before the LHC starts-up in 2015. The new mobile testing equipment basically is a mobile box which the detector maintenance people will use to connect to the detector which would run the test on this drawer of electronics,” Reed explained.

Professor Bruce Mellado who played a lead role in the discovery of the Higgs boson particle before joining Wits in the newly established High Energy Physics Group congratulated Reed, saying this is “a proof of principle that we in South Africa can deliver with similar standards as our European counterparts. It is also not only an academic exercise, but a real product that will be used for real detector maintenance of the ATLAS detector.”

The Hadron Collider was shut down in February for a 2 year maintenance and upgrade programme to boost its level of energy. It is scheduled to be back online for further scientific breakthroughs from 2015.

Image Source: Wits University



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