Vice Chancellor, I have the honour to present, for the award of the degree of Doctor of Science, honoris causa, Jonathan Richard Ellis.

In the beginning, there was no land, just watery darkness. Out of the darkness came the great god Bumba. Bumba was not feeling well. In fact, he had not been feeling well for millions of years. He was lonely, and the unbearable solitude was making him ill. Troubled by a belly-ache, he staggered, moaned and vomited up the sun, the moon and the stars. (That's according to the Kuba of Central Africa). A Chinese version has Pan Gu pushing the sky and the earth apart, and an Indian version has Vishna simply commanding his servant, Brahma, to create the world.

The question of: "What happened in the very very very beginning?" has preoccupied us all - from ancient Palaeolithic humans to the 21st century scientists at CERN today. One of the more significant of these scientists is the man before you now, John Ellis, somebody who has profoundly influenced our understanding of the origins of the universe.

As leader of the Theoretical Physics division at CERN, his work on the Large Hadron Collider has been all about trying to understand what happened in the very beginning.

The CERN Large Hadron Collider generates conditions of extremely high temperature and pressure and thus recreates tiny globs of early universe plasma, enabling physicists to go back to the first few zeptoseconds of time. In effect, creating a mini Big Bang. Ellis' focus has been on interpreting the measurements, formulating them into models and then suggesting new experiments to search for the missing pieces.

Ellis and his experiments contribute to formulating the essential laws of nature – a bit like modern day Newtons and modern day versions of Newton's laws. The current scheme is called the Standard Model, which is a "theory of nearly everything". If this scheme is correct, then it can explain why the sky is blue, why atomic nuclei stick together and, in principle, why DNA is the shape it is. When it was formulated in the late 1970s, there were still many missing pieces, including the gluon and the top and charm quarks. It was John Ellis who proposed the search for the gluon. He faced intense scepticism and questioning about his proposed method, but was proved correct. The public announcement of the gluon discovery came in 1979, and the gluon was named as one of the elite group of essential particles.

Ellis was also one of the first to realise the importance of searching for the Higgs boson. Not only that, but he proposed the method that could be used to search for it. This method has successfully found something that has not yet been named as the Higgs boson, but, in the words of Ellis: "walks like a Higgs boson and quacks like a Higgs boson.."

If John Ellis had not been a physicist, he might well have been a diplomat. His skills range from promoting CERN as a global endeavour to collaborating with scientists from 608 institutes and universities around the world, including those whose home countries are at war. He's a long time friend of UCT and was instrumental in bringing South Africa, and UCT in particular, into the CERN programme.

Although the "origins of the universe stories" start with: "in the beginning…", it was only recently discovered that the universe even had a beginning. But now that we know that there was, we can start with: In the beginning, there was a singularity, and the singularity (in the first few zeptoseconds) vomited up, not only quarks and leptons, but also photons, gluons and the Higgs boson. And for this part of the story, we thank and honour, John Ellis.

Vice Chancellor, I have the honour to invite you to admit to the degree of Doctor of Science, honoris causa, Jonathan Richard Ellis.

1. Dawkins, R., 2011. *The Magic of Reality. How We Know What's Really True*: Bantam Press.
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3. Ellis, J.R. 2009. *Those were the days: discovering the gluon, CERN Courier, 15 July 2009*. [cited 2012 26 November]; Available from: http://cerncourier.com/cws/article/cern/39747.

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5. Ellis, J., *Personal Communication, 12 November 2012*, 2012.