**CITATION FOR PROFESSOR NEIL TUROK: HONORARY GRADUAND**

**10 APRIL 2014** By Professor Paul Maylam

When one thinks of today's world-renowned physicists the name that probably springs to the mind of a layperson is Stephen Hawking. Up there, too, in that top league is this evening's honorary graduand, Professor Neil Turok**.** Indeed, fifteen or so years ago Professor Turok collaborated with Hawking in theoretical research into the origin of the universe. More recently the two have differed on this very subject, with Hawking sticking to the standard 'big bang' theory, while Neil Turok argues that our universe is a child born of a dead parent universe and that there was no beginning at all. The debate appears to be unresolved, but it does tell us that standing here tonight is a brilliant, pioneering scientist and theorist.

Neil's family heritage might have suggested a different future career trajectory, born as he was, in Johannesburg in 1958, into a political family – both parents anti-apartheid activists: his father, Ben Turok, imprisoned for three-and-a-half years during the sabotage campaign, and his mother, Mary, serving a six-month sentence for her political activity. Neil still a young child, the family was forced to flee South Africa, first to Tanzania and then to the UK.

In England Neil underwent his university training – first at Churchill College, Cambridge, and then a doctorate from Imperial College, London. Still only in his mid-thirties he was appointed professor of physics at one of the US's most prestigious universities, Princeton, before taking up the chair of mathematical physics at Cambridge in 1997; since 2008 serving as director of the Perimeter Institute for Theoretical Physics in Canada – a position that enables him to continue his complex explorations into the origin of the universe.

Two years ago his acclaimed book, *The Universe Within*, was published – a book about the past and the future, that explores the most far-reaching discoveries of the last three centuries – from classical

mechanics through to the evolution of the cosmos – and a book that foresees other major scientific advances ahead – a book that has been described as “elegantly written, deeply provocative and highly inspirational”.

Neil Turok’s profound intellectual probing grows out of a fundamentally positive outlook: “merely to be alive”, he says, “to experience and to appreciate the wonder of the universe, and to be able to share it with others, is a miracle”. Out of this comes his intense curiosity, his deep thinking and theorisation. And yet he has come to what may seem a surprising conclusion: while generations of physicists have built elaborate models, he argues that “nature turns out to be simpler than all of these models”. Data derived last year from the Planck science satellite tells us, in Neil Turok’s view, that “the universe is unbelievably simple, and beautiful and elegant”.

Inherent, too, in his thinking is a refreshing optimism: “If you think”, he says, “about the actual problems we are facing – all the crises – we have the means to solve these crises”. He foresees major transformative scientific advances in the near future – he himself working on a project to create a quantum computer – the infinitely more powerful potential replacement for digital technology – so that in less than ten years’ time the hard drive of a laptop computer could possibly store the contents of every book ever written.

It might be expected that an internationally renowned scientist would devote all their time to first-world projects and initiatives. Not so with Neil Turok who has retained a wholehearted commitment to the continent of his birth: in 2003 founding the African Institute for Mathematical Sciences, going under the acronym, AIMS – based in Cape Town, a partnership project involving a number of universities, including Oxford, Cambridge, UCT, UWC, and Stellenbosch; set up to promote maths and science in Africa, to recruit and train talented students and teachers, to build African capacity in education, research and technology. AIMS has so far trained 450 students from 31 African

countries, has reached over 500 disadvantaged maths teachers in South Africa, and has opened two centres for postgraduate training and research in Senegal and Ghana.

Out of AIMS has come what is called the 'Next Einstein Initiative' – launched in 2008 – a proposal to create fifteen AIMS centres across Africa within ten years. Neil's wish is for AIMS to unlock and nurture scientific talent across Africa so that the next Einstein will be an African. He sees Africa as the world's greatest untapped pool of scientific talent, and believes that the only people who can fix Africa are talented young Africans.

For his outstanding intellectual endeavours Neil Turok has received many awards – among them the Technology, Entertainment and Design Prize in 2008, and the award for the Most Innovative Person at the World Summit on Innovation and Entrepreneurship; and four honorary doctorates.

It is appropriate that Professor Turok should be receiving an honorary doctorate from a university in Africa, the continent of his birth and the continent to which he continues to give so much of his time and energy.It is also appropriate for Rhodes to be bestowing this honour at a time when South Africa is striving to build capacity and develop teaching in maths and science – an endeavour in which Rhodes itself is deeply involved. Neil Turok's message of hope is one that can inspire young Africans to realise their potential in these fields. He himself has been described as "a tireless campaigner and fund raiser, bringing global support from some of the greatest scientific minds of our time to nurture his dreams for science and maths on the continent". He is one of the world's leading physicists – an innovative, pioneering scholar who is breaking new ground in explaining the origin of the universe.

Mr Chancellor, I have the honour to request you to confer on Professor Neil Turok the degree of Doctor of Laws, *honoris causa*.