**ROYAL SOCIETY OF SOUTH AFRICA**

Lecture Series 2018

**Professor Francesco Petruccione**

Professor of Theoretical Physics

University of KwaZulu-Natal, Westville, South Africa

will present a

PUBLIC LECTURE

entitled

**“The 4TH Industrial Revolution: a Big Data centred new world with spooky new technologies”**

Wednesday, 12th September 2018

Time: 5.45 pm

Venue: John Bews Lecture Theatre,

Life Sciences Campus, Carbis Road,

University of KwaZulu-Natal, Scottsville Campus, South Africa

Pietermaritzburg

Francesco Petruccione was born in 1961 in Genova (Italy). He studied Physics a t the University of Freiburg i. Br. and received his PhD in 1988. He was conferred the “Habilitation” degree (Dr. rer. nat. habil.) from the same University in 1994. In 2004 he was appointed Professor of Theoretical Physics at the University of KwaZulu-Natal, in Durban (South Africa). In 2005 he was awarded an Innovation Fund grant to set up a Centre for Quantum Technology. In 2007 he was granted a South African Research Chair for Quantum Information Processing and Communication. At present, he is also one of the Deputy Directors of the National Institute for Theoretical Physics. He has published more than 170 papers in refereed scientific journals. He is the co-author of a monograph on “The Theory of Open Quantum Systems” (about 6000 citations according to Google Scholar), that was published in 2002, reprinted as paperback in 2007, and recently translated in Russian. He is a member the Editorial Board of “Open Systems and Information Dynamics” and “Scientific Reports”, editor of several proceedings volumes and of special editions of scientific journals and is currently writing a book on Quantum Machine Learning.

We are living in exciting times, in which the traditional “offline” world is constantly “online” and where this new “online” world is influencing more and more the “offline” one. The fourth Industrial Revolution is centred around the convergence of cyber-physical systems, the Internet of Things and the Internet of Systems. At the same time, we are experiencing the 2nd Quantum Revolution, which exploits the “spooky” properties of Quantum Mechanics, to give us access to formidable new technologies, such as quantum metrology, quantum communication and quantum computing. The talk explains how the emerging quantum technologies are crucial to the success of the Big Data centred new world.

**All welcome, please support!  Light refreshments will be supplied.**

**Enquiries: Dr Edith Elliott, Tel. 082 4159435 / Charmaine Ahrens 033 2605435**

