



Contribution ID: 1001

Type: **not specified**

Quantum technologies

Monday 4 April 2022 17:30 (1 hour)

The Age of Computation is yet to Come

The theory of classical universal computation was laid down in 1936, was implemented within a decade, became commercial within another decade, and dominated the world's economy half a century later. This success story relied on the progress in technology. As computers become faster they must become smaller. The history of computer technology has involved a sequence of changes from one type of physical realisation to another, with smaller and smaller components. The unavoidable step to the quantum level will be one in this sequence; but it promises something more exciting as well. It can support entirely new modes of computation that do not have classical analogues. At present it is not clear when, how and even whether fully-fledged quantum computers will eventually be built; but notwithstanding this, the quantum theory of computation already plays a much more fundamental role in the scheme of things than its classical predecessor did. I believe that anyone who seeks a fundamental understanding of either physics, computation or logic must incorporate its new insights into their world view. There is so much potential in this fundamentally new way of harnessing nature that it appears as though the age of computation has not yet even begun!

Presenter: EKERT, Artur Konrad (National University of Singapore and Oxford University)

Session Classification: Special lecture by Artur Konrad Ekert