

Café Scientifique Headingley

Monday 20th May 2024

How cute cats and Stranger Things may bring down civilisation
- a quantum mechanical saga

By: Oscar Cespedes



Outline: Almost pathologically ingrained in all our life experiences, from entertainment to banking or medical diagnosis, the amount of information we store and exchange grows exponentially, and it is expected to reach a yottabyte (10^{12} terabytes) per year in the near future. The storage and exchange of all this data requires 600 billion litres of water and the equivalent power consumption of Germany -and it is expected to double by 2030, with hardware replacements every 5-10 years. But what is behind the need for this exponential increase in resources? Can we make things better in the future or we should abandon the technological advances of the last three decades? In this talk, we will discuss how quantum physics imposes limitations in what we can achieve, but also offers prospects for sustainable technological progress by the design of advanced materials and new science at the limits of what we can measure.

Speaker: *Oscar did a PhD in magnetism at Trinity College Dublin a few years ago. Afterwards, he worked at the Atomic Energy Commission of France but not doing anything dangerous, just nano-spintronics. Later, he was awarded a JSPS fellowship at the Applied Quantum Physics Department of Kyushu University in Japan to investigate biomagnetic approaches to Alzheimer's disease. He did not like dissecting rats' fetuses and left Japan to join the School of Physics and Astronomy at the University of Leeds, where he is now Professor of Condensed Matter Physics teaching and researching quantum materials, low-loss electronics and sustainable technologies.*

Venue: *The New Headingley Club, 56 St Michaels Road, LS6 3BG*

Time: *Room opens 7:30pm, Talk begins promptly at 7:45pm*

Entry: *Donation please for room hire and expenses: £4 at the door*



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