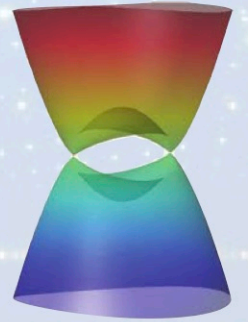
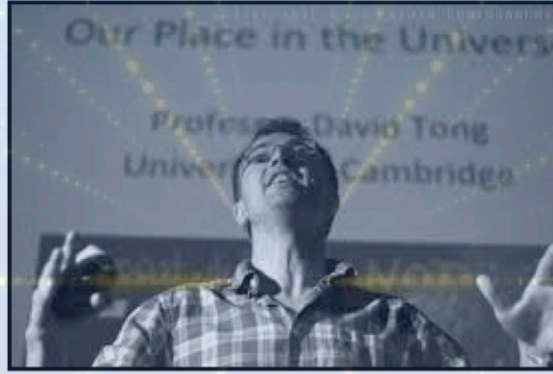




**DAVID OLIVE DISTINGUISHED
LECTURES IN THEORETICAL PHYSICS**

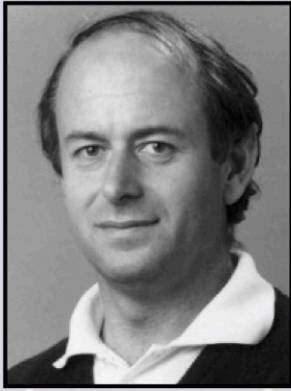
ARE WE LIVING IN THE MATRIX ?



BY

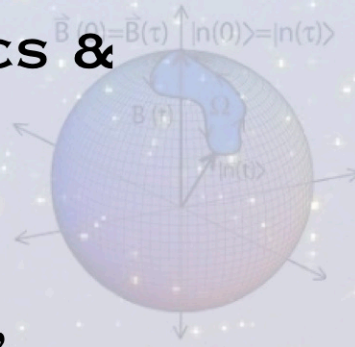
PROFESSOR DAVID TONG

**DEPARTMENT OF APPLIED MATHEMATICS &
THEORETICAL PHYSICS,
CAMBRIDGE UNIVERSITY.**



PROF. DAVID I. OLIVE

**20 MARCH 2020, FRIDAY, 3:00PM,
TALIESIN ARTS CENTRE, SWANSEA U.
ALL ARE WELCOME!**



ORGANISING COMMITTEE: PROFS. MIKE CHARLTON, PREM KUMAR, GRAHAM SHORE

HERE'S AN INTERESTING FACT:

NO ONE KNOWS HOW TO SIMULATE THE LAWS OF PHYSICS ON A COMPUTER

THE OBSTACLE IS RELATED TO SOME OF THE DEEPEST AND MOST SUBTLE FACTS ABOUT THE QUANTUM WORLD. THIS TALK WILL DESCRIBE THESE ISSUES AND THEIR IMPLICATIONS FOR THE UNIVERSE IN WHICH WE LIVE.

ABOUT THE SPEAKER

PROFESSOR DAVID TONG is a member of the High Energy Theory group at the Department of Applied Mathematics and Theoretical Physics (DAMTP), **Cambridge University**, and a Fellow of Trinity College. He is a leading theoretical physicist, specialising in **Quantum Field Theory** and **String Theory**. His research covers a vast array of topics ranging from Cosmology & String Theory to the physics of Monopoles, Vortices and the Quantum Hall effect, having made seminal contributions to each of these areas, often revealing subtle and beautiful connections between seemingly different phenomena. Prof. Tong received his PhD from Swansea University in 1998, and subsequently held research positions at Kings College London, the Tata Institute of Fundamental Research (Mumbai), Columbia University NY, and the Massachusetts Institute of Technology (Boston). A recipient of several research awards, including the prestigious Simons Investigator and Royal Society fellowships, Prof. Tong is also widely acclaimed for his beautifully written and insightful lecture notes on a variety of topics in physics, ranging from Classical Mechanics to String Theory. Known for his enthusiastic and engaging lecturing style, he is an extremely popular and effective communicator of physics to the general public — his public lectures available on social media sites have garnered several millions of views, one of the most highly viewed ones being his Royal Institution lecture on Quantum Fields.



Professor DAVID OLIVE, CBE, FRS, FLSW (1937 - 2012) was one of the founding members of the Swansea Particle Physics Theory group in 1992, prior to which he held academic positions at Imperial College, CERN and Cambridge. His seminal contributions shaped the development of **quantum field theory** and **string theory**. His scientific career began with important work in **S-matrix theory** culminating with him co-authoring the definitive text on the subject titled "*The Analytic S-matrix*" together with Eden, Landshoff and Polkinghorne. His work on the spinning string leading to the **GSO (Gliozzi-Scherk-Olive) projection** played the central role in the realisation of spacetime supersymmetry in string theory. Prof. Olive, together with Peter Goddard and Adrian Kent pioneered the **coset construction**, one of the most important results in two dimensional conformal quantum field theories, which eventually led to ways of incorporating spacetime **gauge symmetry in string theory**. The deep insights on properties of monopoles due to Goddard, Nuyts and Olive, and the bold proposal of Olive and Montonen on **electric-magnetic duality** in non-abelian gauge theories had arguably the most far-reaching impact on the development of dualities in quantum field theories and propelled the duality revolution in string and M-theory. For these pioneering and far-sighted contributions David was awarded the **Dirac Medal** of the International Centre for Theoretical Physics (ICTP) **in 1997**.