

A Short Journey from Quarks to the Universe

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Foundation for Research and Technology-Hellas, Greece

9 Oct 2012 (Tue), 4:00 - 6:00 pm, Room 2612A (2/F near Lifts 31-32)

10 Oct 2012 (Wed), 4:00 - 6:00 pm, Chen Kuan Cheng Forum (LT-H)

11 Oct 2012 (Thu), 4:00 - 6:00 pm, Room 2612A (2/F near Lifts 31-32)

Abstract:

These lectures take the reader for a short journey over the structures of matter showing that their main properties can be obtained even at a quantitative level with a minimum background knowledge. The latter, besides some first undergraduate year physics and mathematics, consists of the three cornerstones of science, namely the atomic idea, the wave-particle duality, and the minimization of energy as the condition for equilibrium. Dimensional analysis employing the universal constants and combined with “a little imagination and thinking”, to quote Feynman, allows an amazing short-cut derivation of several physics formulae.

These lectures are expected to be of interest to physics students and to researchers in physics, material science, and chemistry who may appreciate the offered overall picture and the alternative derivation of several physics formulae, which sometimes seem to pop out the magician’s hut.

About the speaker:

Eleftherios Economou is a Research Fellow at IESL-FORTH and Emeritus Professor at the Physics Department of the University of Crete. He received his PhD in 1969 from the Physics Department of the University of Chicago, USA. From 1969 to 1981 he was Professor at the University of Virginia, between 1978 and 1981 at the University of Athens and from 1981 to 2007 Professor at the Physics Department of the University of Crete. From 1983 to 2003 he served as president of FORTH. He received also honorary doctorate degrees from the Polytechnic of Grenoble and the University of Ioannina. He has a strong research output on the properties of disordered systems, high T_c superconductors, amorphous semiconductors, and wave propagation in random media. In recent years he has been focused mostly on the study of elastic and electromagnetic wave propagation in complex media, mainly photonic crystals, phononic crystals and metamaterials. He is among the initiators of the field of phononic crystals, where his work has been very well received.

He has ~232 publications in refereed journals and he has been cited more than 10000 times in SCI journals. He has written ten books and has given many invited talks in conferences and at Universities/Institutes.

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