REGISTRATION FEES

REGISTRATION FEES (inclusive of lecture materials, lunch and tea breaks)

MALAYSIAN		OTHER COUNTRIES	
Student	: RM400	Student	: USD150
Non-Student	: RM600	Non-Student	: USD250

Participant may pay the workshop fees in one of the following ways:

OPTION 1: Bank Draft/ Cheque

Payable to:
"BENDAHARI UNIVERSITI PUTRA MALAYSIA"
. Please mail the bank draft/cheque to:

EQuaLS2013 Secretariat,
Institute for Mathematical Research,
Universiti Putra Malaysia,
43400 UPM Serdang,
Selangor, MALAYSIA.

OPTION 2: Electronic Funds Transfer (EFT)

Beneficiary Name	:	BENDAHARI UNIVERSITI PUTRA MALAYSIA
Bank Name	:	CIMB Islamic Bank
Bank Address	:	CIMB UPM Branch, 43400 UPM Serdang, Selangor,
Account No.	:	1215-0005004-05-0
SWIFT Code	:	CIBBMYKL

* **All charges/fees/commissions related to the payment must be borne by the participants.**
* **The abbreviation of the workshop: EQuaLS2013 and the participant's full name must be clearly indicated on the bank draft or cheque for verification.**

ACCOMMODATION

Participants may wish to book their own accommodation at the following recommended hotels which are close to the university campus.

Mines Wellness Hotel
Phone : +603-8943 6688
http://www.mineswellnesshotel.com.my/

Hotel Equatorial Bangi-Putrajaya
Phone: +603-8210 2222
www.equatorial.com/bng/

Putrajaya Marriott Hotel
Phone: +603-8949 8888
http://www.marriott.com/hotels/travel/kulpg-putrajaya-marriott-hotel/

Palm Garden Hotel
Phone: +603-8943 2233
palmgarden.com.my

Residence Hotel@UNITEN
Phone: +603 - 8922 2088
http://www.residenceputrajaya.com.my/

For further details please contact :

EQuaLS2013 Organizing Committee
Institute for Mathematical Research
Universiti Putra Malaysia
43400 UPM SERDANG
SELANGOR, MALAYSIA

Phone : +603 8946 8906/6878
Fax : +603 8946 6973
E-mail : zuritaismail@gmail.com

Expository Quantum Lecture Series 2013 (EQuaLS 2013)

"Complex Systems"

Date : 22-24 November 2013
Venue : INSPEM Seminar Room, 2nd Floor, INSPEM Building, Universiti Putra Malaysia

Organised by :
Laboratory of Computational Sciences and Mathematical Physics, Institute for Mathematical Research (INSPEM), UPM
Department of Physics, Faculty of Science, UPM
Malaysian Institute of Physics

INTRODUCTION

Expository Quantum Lecture Series or EQuaLS is a lecture series initiated by a loose grouping of theoretical physicists associated with the Institute for Mathematical Research (INSPEM) and Faculty of Science in Universiti Putra Malaysia (UPM). Beginning in 2007, EQuaLS has been held almost annually, each carrying a theme associated to quantum sciences and related topics in theoretical physics, in general.

The objective of this lecture series is to rapidly introduce students and researchers to frontier topics of theoretical physics, quantum sciences and other related areas by inviting prominent researchers in the area.

EQuaLS 2013 is organized by Laboratory of Computational Sciences and Mathematical Physics of INSPEM and the Department of Physics, Faculty of Science, UPM. It is also supported by the Malaysian Institute of Physics (IFM). This year's EQuaLS is held in conjunction with Mathematics of Planet Earth 2013 of which INSPEM is a participating institution. Thus, EQuaLS 2013 takes on the general theme Complex Systems recognizing the fact that our very planet and civilization are examples of such systems. Topics covered in the lectures will be those related to biological systems, social systems and other physical systems whose interacting parts give rise to emergent collective behavior.

WHO SHOULD ATTEND

All researchers and students interested in problems of related physical sciences, computer science and mathematics.

INVITED SPEAKERS

(1) MASON PORTER
Mathematical Institute, University of Oxford, UK

"Networks: Structure and Dynamics"

"Network Science" is the science of connectivity, and it is one of the most exciting developments in modern science. Complex systems of interacting entities can often be represented using the language of networks, and numerous tools have now been developed to help achieve answers to a host of interesting questions about network structure and function. Here are just a few examples: How does one measure the most important people in a social network or the most important roads in a city? How does one determine the social organization of a university starting from local information about friendships? What is the best vaccination strategy to minimize the propagation of a disease? I will introduce the subject of networks in three parts. In the first lecture, I will give an introduction to a few basic ideas, network types, and network diagnostics. In the second, I will introduce mesoscale structures in networks. I will concentrate on "community structure", which is the most popular type of mesoscale network structure, but I will briefly discuss others as well. In the third lecture, I will introduce dynamical systems on networks. For this last topic, my main theme will be the effect of nontrivial network structure for dynamical systems on networks.

(2) RICHARD SEAR
Department of Physics, University of Surrey, UK

"The Nucleation of Crystals: Simple Models for a Complex Problem"

Crystallisation is an important and widespread phenomenon. For example, most drugs are sold as crystals and so must be controllably crystallised, and models of the Earth's atmosphere require as input the rates of freezing of water droplets. The freezing of water droplets is an essential process in cold clouds. Crystallisation starts with an activated process: nucleation. I will mainly discuss statistical models of nucleation, particularly the role of quenched disorder, but I will also show the results of computer simulation of nucleation. Quenched disorder is disorder in the system that is fixed, i.e., it does not vary in time, as thermal fluctuations do. Nucleation can be complex. Recent experimental results for both aspirin and water crystallisation, and simulation results on a lattice model with quenched disorder are not consistent with a nucleation rate that is in the thermodynamic limit. This has consequences, if the rate is not in the thermodynamic limit, the time for nucleation will not necessarily scale as one over system size. I will introduce the statistics required to analyse data for nucleation times to test for the existence of a well defined nucleation rate. I will introduce the use of extreme-value statistics to model the quenched disorder. I will introduce extreme-value statistics, which is useful in a number of fields of physics, and use it to make predictions for nucleation that are testable in experiment. I will also discuss the calculation of nucleation rates via computer simulations of simple models, and give some examples of a crystal nucleating on a surface that is also crystalline. Then the match between the crystal lattice of the nucleus and the lattice of the surface is important.

(3) HIROYUKI SHIMA
University of Yamanashi, JAPAN

"Geometry - Property Relation in Condensed Matter Physics"

The phrases of "geometry" and "curvature", originally used in the mathematics community alone, are becoming commonplace in a realm of condensed matter physics. Profound effects of geometric curvature have manifested not only in Einstein's gravity theory, but also in diverse low-dimensional materials such as nano-carbon layers, liquid crystal membranes, and mono-layered aqueous foam. The body of research on the subjects has relied on differential geometry. On one hand, it allows to formulate an effective Hamiltonian of quantum excitations confined in curved surfaces. On the other hand, it enables us to appreciate beautiful interplay between surface curvature and topological defect configuration in two-dimensional ordered systems. Furthermore, geometry property relations become salient in soft matters that are mechanically deformable.

In this lecture, I give a bird's-eye review on the theoretical progresses on the geometry-property relations in low dimensional materials endowed with nonzero surface curvature. Special focus is placed on the following three issues: (i) quantum transport in curved nanostructure, (ii) orientational order/ disorder transition on curved surfaces, and (iii) time-evolution of aqueous foam confined between curved substrates. Theoretical approaches based on differential geometry, which facilitates quantitative description of the curvature effects, are also explained.

"Limited places are open for contributed talks. Interested participants may send their abstracts directly to the secretariat"