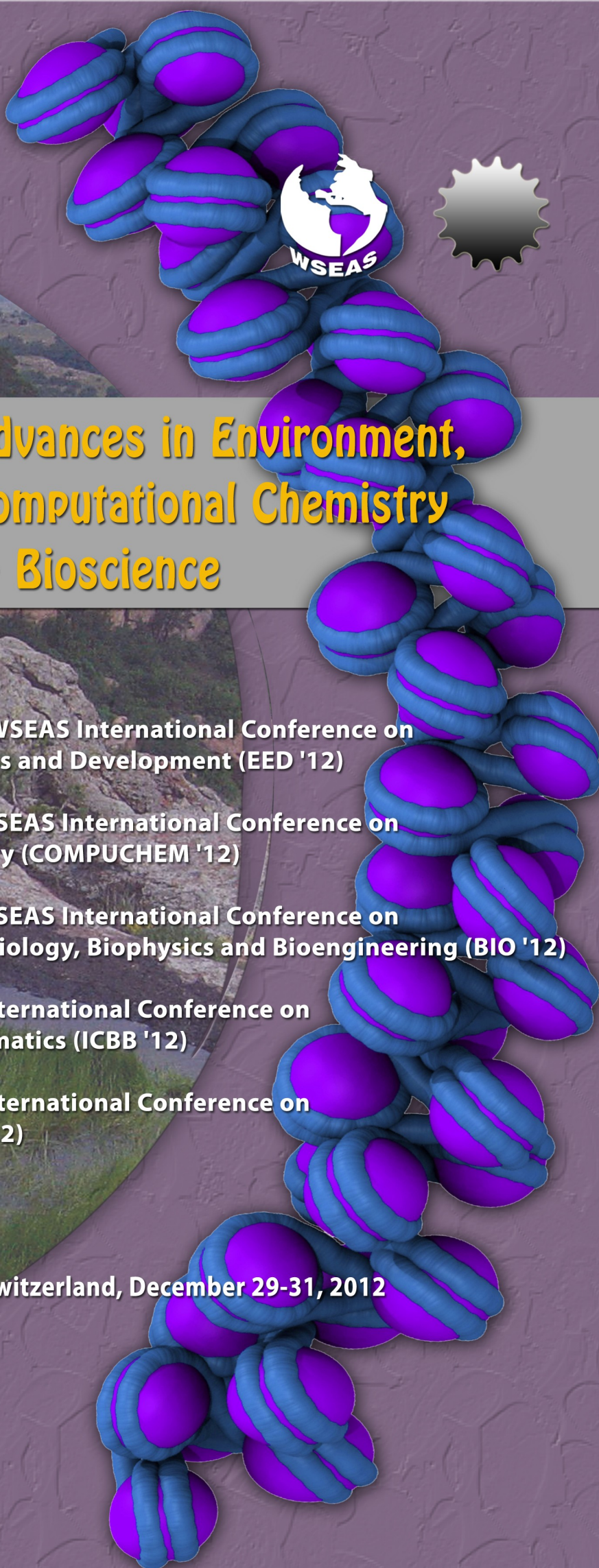


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# Advances in Environment, Computational Chemistry & Bioscience

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## Plenary Lecture 1

### Importance of Biological Parameters of Water Quality to Reform WQI in Practice



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**Abstract:** Good quality of water to drink or for meeting any demand is expensive these days. An economical and a sustainable method of water treatment has not yet achieved in our water history. Water specialists and water/water related companies are trying hard on technologies from macro to nano methods but end up with some limitations and some compromises. Studies have showed that microbiological pollutants are the significant contaminants for the water-related diseases and researches have been carried out to assess the efficiency of water treatment plant to remove microbiological pollutants from the raw water. Globally use of chlorine-based process to disinfection is the most successful and common in treatment process. Studies showed that in Malaysia as well chlorination process is the best method to produce “microbiologically safe” water until water problem arises in year 2009. Total Coliform violations in the complied chlorine treated water possess problem within the water treatment plant located in Selangor. There is an urgent need to investigate on this problem as the systems continue to deteriorate in recent years. In view of this, properly planned and interdisciplinary studies are being conducted on the causes and sources of total Coliform-positive occurrences in the water treatment systems. The current WQI to ascribe water quality are mostly physio-chemical based, without consideration for biological specifically microbial based indicators. The objective of the paper is to present the approach of redesigning WQI using neural network and fuzzy logic systems. The model could be packaged into a software and further to construct hardware (Water analyser), a hand held unit to test the status of quality of water on- site, for every hour and for any time scale. These methods have been successfully used in many fields of studies including water and water related research. Thus the risk of choosing macro to nanotechnologies to treat the water could be made appropriate by this invention of new software and hardware.

**Brief Biography of the Speaker:** For being a Ph.D. in Environmental and Water Resources Engineering from Indian Institute of Technology, Madras in Dec 2004 and M.E in Water Resources Engineering and Management from Regional Engineering College, Trichy in Dec 1995, she has proved her exceptional calibre and outstanding performance in her chosen area of activity. Presently she is employed as Associate Professor in Civil Engineering Department of University of Nottingham Malaysia Campus. She has completed her service as Lecturer in University of Malaya in Malaysia for three years and various other Universities in India. Overall she has 19 years of significant service in the field of Water Resources and Environmental Engineering in various positions as academicians, project leader (sponsored projects), researcher, engineering consultant, academic fellow, dissertation examiner, senior tutor, international project reviewer, referred journal reviewer, external examiner and resource person of one-day, two-day seminars. Her specialized areas of study and career are in Water resources systems, Hydrology, Water quality and water treatment, environment, Optimization, Computer modelling, Artificial Intelligence methods such as Fuzzy logic, Artificial Neural Networks and Neuro-fuzzy logic systems, image processing, Geographical Information systems. She has 22 National conference papers, 53 International conference papers, 5 national journals, 8 international journals and 6 book volumes published. She has participated in 45 seminars, 20 workshops and organized 8 Seminars and workshops. Further she has 4 Patents pending and 1 copyright. Her name has been included in the International Who's Who of the professionals 2011 Edition of United States of America. She has won 10 awards (1 Double-Gold, 2 Gold, 4 Silver and 3 bronze medals) in her field of specialization especially in Water and Environmental Engineering. Recently she has been awarded the “Best Citizens of India Award”, by International Friendship Society, New Delhi in India in lieu of the yeoman services rendered with excellence in the chosen field of activity.

## Plenary Lecture 2

### Structuring an Ontological Knowledge Base for Biomass Exploitation and Biofuels Production



#### **Professor Fragiskos A. Batzias**

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**Abstract:** In information science, an 'ontology' represents the knowledge acquired/processed within a domain in terms of concepts and functional/logical/causal relations between them, expressed explicitly by means of a controlled vocabulary, mutually agreed/shared and continually enriched by the human experts who are in charge for the corresponding activities. The present work deals with structuring a Knowledge Base (KB) under the form of an ontology for biomass exploitation with emphasis on biofuels production. An inference engine has been developed in order to search this KB effectively, serving also as an intelligent agent capable to discover new relations and restructure entities to achieve better functionality of the system and connectivity between the nodes of the corresponding cognitive network, while executing technical work like 'thinning' and 'thickening', thus creating relatively independent sub-structures and super-structures, respectively. Multi-criteria taxonomic functions are also used to categorize (through usual operators like 'is-a' or 'is-member-of') lignocellulosic species while partonomic or mereological functions perform decomposition/recomposition by means of logical operators, like 'is-part-of' or 'connects-A-to-B'. The methodology developed and presented herein suggests a combination of two ontologies, one for the biomass and another for the biofuels produced by downstream industrial processes. The corresponding inference engine is capable for searching in both domains, bridging the respective knowledge, thus contributing to total optimization in terms of Environmental Life Cycle Analysis.

**Brief Biography of the Speaker:** Prof. Fragiskos Batzias holds a 5years Diploma and a PhD degree in Chemical Engineering, and a BSc in Economics. He has also studied Mathematics and Philosophy. He is Director of the Laboratory of Simulation of Industrial Processes and Head of the Research Group on Systems Analysis at the Department of Industrial Management and Technology of the University of Piraeus, Greece. He is teaching at the interdepartmental postgraduate courses (i) Systems of Energy Management and Protection of the Environment, running by the University of Piraeus in cooperation with the Chem. Eng. Dept. of the Nat. Tech. Univ. of Athens, and (ii) Techno-Economic Systems, running by the Electr. & Comp. Eng. Dept. of the Nat. Tech. Univ. of Athens in cooperation with the University of Athens and the University of Piraeus. His research interests are in chemical engineering systems analysis and knowledge based decision making. He has >100 publications in highly ranked journals and conference proceedings, including 29 research monographs in collective volumes, with 171 citations and an h-index of 8 (for the period 2004-2012, source: ISI Web of Science, Thompson Scientific; self-citations have been excluded).

He has participated (and chaired after invitation from the organizers) in prestigious international conferences, such as those organized periodically by the IEEE, the European Federation of Chemical Engineering (EFCE), the DECHEMA, CHISA, WSEAS Organizations. He organizes the annual Symposium on Industrial and Environmental Case Studies running successfully since 2004 within the International Conference of Computational Methods in Sciences and Engineering (ICCMSE).



## Plenary Lecture 3

### Creating Sustainable Urban Green Corridors Network – A Case Study in the City of Braga, Portugal



#### Professor Rui A. R. Ramos

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**Abstract:** The life quality in urban areas is progressively a competitive factor to the cities. Nowadays, urban green spaces and the existence of a sustainable urban environment are crucial for the urban citizens' life quality, in addition to the basic necessities of urban life promoted by UN-Habitat Good Urban Governance, i.e., adequate shelter, security of tenure, safe water, sanitation, a clean environment, health, education and nutrition, employment and public safety and mobility.

The main objective of this work is to analyse and discuss the environmental, the connectivity, and the security significance of urban green corridors network in urban green spaces system. Urban green parks, river corridors, woodlands in rural-urban fringe and urban gardens should form a hierarchy of different types, sizes and scales of urban green spaces. In a city, as an urban planning and development process toward a sustainable environment, those several green spaces should be integrated and connected through green corridors network.

The environmental connectivity of urban green spaces promoted by the green corridors should be considered as a strategy of urban overall biodiversity conservation. Also, the network must be based on green pathways to develop and upgrade in a sustainable mode the surrounding streets pattern, and access points placed at major junctions. Integrated, safe and attractive urban green pathways should link the urban green spaces and encourage people to travel to work and school or to access local services on foot or by bicycle. Moreover, well connected urban green spaces that are regularly used also help make the public realm feel safer.

The proposal of urban green corridors network for Braga is seeking to connect the city green spaces and to promote a safe foot and bicycle routes to the city central area. In this way, the network establishes a sustainable transport solution by cycle and walking to several daily destinations, i.e., schools, commerce and business offices, and public services. Through the green corridors network proposed for Braga, urban green spaces and some natural greenbelts would be integrated into a whole system to serve the whole city, giving a powerful support to enhance the life quality of citizens and the stability of urban sustainability.

**Brief Biography of the Speaker:** Rui Ramos is an associate professor of Civil Engineering Department, Engineering School, University of Minho, Portugal. His area of expertise is Urban and Regional Planning and he is a PhD Researcher at Territory, Environment and Construction Centre from University of Minho. In 1993, at University of Minho, he started his regular work as a lecturer and researcher. Since then he published as author or co-author over 70 scientific papers in reviewed journals or presented at international conferences, and 7 PhD and several MSc students were graduated under his technical supervision. Moreover, since 2000, he had the opportunity to be an invited Professor at the Department of Transportation of the School of Engineering of Sao Carlos, University of Sao Paulo, Brazil.

## Plenary Lecture 4

### Renewable Energy in Malaysia: Review on Energy Policies and Economic Growth



#### **Professor Azami Zaharim**

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**Abstract:** Malaysia as a Southeast Asian country is a set which includes the Western peninsular and Eastern part Sabah and Sarawak. Having a population of almost 28 million people, its economy is about 447 billion dollars. The trends of industrialization and increasing consumption in Malaysia have caused that supplying energy become one of the first priorities. Tropical climate means high percentage of rain and sunshine which are reason of dense jungles and different rivers and it means a high potential for clean and green energies. The present study is a statistical-economic overview of the possibility of renewable energies production in Malaysia and its economic capacity. Through clarifying the effective relation between energy capacities and economic indexes in Malaysia, this article has tried to deal with the results.

**Brief Biography of the Speaker:** Azami Zaharim worked first 13 years as a lecturer in the Universiti Teknologi MARA (University of MARA Technology - UiTM) before joining the Universiti Kebangsaan Malaysia (National University of Malaysia - UKM) in the year 2003. He obtained his BSc(Statistics and Computing) with Honours from North London University, UK in 1988 and PhD (Statistics) in 1996 from University of Newcastle Upon Tyne, UK. He specialize in statistics, public opinion, engineering education and renewable energy resources. In the year 2007, he headed the Engineering Mathematics Research Group. At the same time, he is currently active involve in outcome based education (OBE) approach at the national level and the chairman of the Engineering Education Research Group since 2005. He is also involved actively in the research for the future of engineering education in Malaysia 2006 under the Ministry of Higher Education of Malaysia. He is currently Head of Project Group of Renewable Energy Resources Analysis, Policy & Energy Management, Renewable Energy Niche and also Head of Centre for Engineering Education Research. He has until now published over 80 research papers in Journals and conferences, conducted more than 15 public opinion consultancies and delivered 4 keynotes/invited speeches at national and international meetings.

## Plenary Lecture 5

### Results Accuracy versus Computational Costs: Indications on the Performance of Different Levels of Theory from an Extensive Computational Study of Acylphloroglucinols



**Professor Liliana Mammino**  
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**Abstract:** Finding an optimal balance between results accuracy and computational costs is a crucial issue in the study of molecules, above all when the molecules are not small. The identification of patterns in the performance of different calculation methods may thus be of use when planning calculations of new molecules.

An extensive computational study of acylphloroglucinols' molecules – ranging from 17 to more than 100 atoms – has provided ample opportunity for the comparison of the performance of different levels of theory (HF, DFT/B3LYP and MP2), also because the structural characteristics of these molecules enable the consideration of a variety of different features (including intramolecular hydrogen bonding), which increases the comparison significance. Moreover, calculations were performed in four different media (in vacuo and in three solvents), which adds the effects of the medium to the comparison domain. The results obtained for other classes of molecules that were interesting to compare with acylphloroglucinols (e.g., several hydroxybenzenes) further expand the comparison ground.

The lecture analyses the obtained results specifically from the point of view of the calculation methods' performance, compares the ensuing inferences with those derivable from studies of other types of molecular systems (from literature), proposes some patterns that can be useful on selecting calculation methods for middle-size molecules, and outlines further research questions. The performance of HF – proving particularly good for the studied classes of molecules – is given specific attention, as the issue of HF performance is not yet completely clarified. The performance varies remarkably for different molecular systems and different types of investigation focuses (from the good one observed in this study to very poor ones), suggesting that deeper insight is needed to identify reliable patterns; on the other hand, its comparatively low cost makes HF convenient – at least in preliminary searches – when reasonably good performance can be expected, which enhances the importance of reliable patterns. Several of the other analysed issues also suggest the relevance of patterns-identification. Furthermore, what appeared to be a systematic overestimation of hydrogen bond strength by DFT/B3LYP suggests also something beyond pattern identification, as the observed systematicity appears to recommend the opportunity of the identification of scaling factors that could reliably relate the DFT/B3LYP estimations to actual/experimental values.

**Brief Biography of the Speaker:** Liliana Mammino was born in Pisa (Italy). She obtained a degree in chemistry at the University of Pisa in 1973 and a PhD in chemistry at Moscow State University in 1982. She has worked mostly in African institutions: National University of Somalia (1974-1975), University of Zambia (1988-1992), National University of Lesotho (1993-1996) and, since 1997, at the University of Venda (South Africa) where she is currently a professor in the department of chemistry. Her research interests comprise theoretical/computational chemistry (her field of specialization), with specific interest in the computational study of biologically active molecules, and chemical education, with specific interest in conceptual understanding and the roles of language and visualization. She has published articles in both areas, for a total of more than 80 articles in journals and more that 120 conference presentations. She is also author of a chemistry textbook, of chemistry resource materials and of a book on the language of science.

## Plenary Lecture 6

### Evaluation of the Effect of pico-Tesla Transcranial Magnetic Stimulation in Patients with Various CNS Disorders Using the SQUID



**Professor Photios Anninos**  
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**Abstract:** MEG recordings of patients with CNS disorders were obtained using a whole-head 122-channel magnetometer SQUID and analyzed using Fourier statistical analysis. External magnetic stimulation in the order of pico Tesla (pTMS) was applied on the above patients with proper characteristics (magnetic field amplitude: 1-7.5pT, frequency: the alpha-rhythm of the patient: 8-13Hz) which were obtained with MEG recordings prior to pTMS. The MEG recordings after the application of pTMS showed a rapid attenuation of the high abnormal activity followed by an increase of the number of the low frequency components toward the patients alpha-rhythm. The possible mechanisms by which the magnetic stimulation is acting are discussed.

**Brief Biography of the Speaker:** Prof. P. Anninos is Emeritus Prof. of Medical Physics in the Department of Medicine of Democritus University of Thrace, Alexandroupolis, Greece after serving there as a Professor of Medical Physics for many years. His research interests concern Theoretical neural models, experimental Neurophysiology with emphasis in MEG measurements using SQUID's and the use of pTMS in patients with CNS disorders. He has published more than 200 scientific papers in reviewed journals and has written several books in his field. He is a scientific reviewer for several international Journals.

## Plenary Lecture 7

### Manipulation of Human Genome Using Completely Chemistry-Based DNA Cutter



#### Professor Makoto Komiyama

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**Abstract:** The current molecular biology is primarily based on site-selective DNA scission by restriction enzymes. However, site-specificity of naturally occurring restriction enzymes is too low to manipulate huge DNA. In order to solve this problem, we recently developed completely chemistry-based tools (Artificial Restriction DNA Cutter; ARCUT) which cut double-stranded DNA at desired site. These tools are composed of (1) Ce(IV)/EDTA complex as molecular scissors to hydrolyze the phosphodiester linkages and (2) two pseudo-complementary PNA strands. The site of selective scission is simply determined by Watson-Crick rule, and the site-specificity is freely modulated by changing the lengths of PNA strands.

With the use of ARCUT, the whole genome of human beings (composed of  $3 \times 10^9$  base-pairs) was selectively cut at one target site. Importantly, analogous sites, which are different from the target site only by one or two base-pairs, were hardly cut and thus specificity of the scission was sufficiently high. The scission fragments were easily combined with foreign DNAs using ligase. Furthermore, targeted homologous recombination in human cells was notably promoted by selective scission of the genome at the corresponding site. Thus, a site in a gene in human genome was converted to a predetermined sequence, when ARCUT was introduced into human cells together with the corresponding homologous DNA fragments. Various applications of ARCUT to molecular biology and biotechnology are strongly indicated.

**Brief Biography of the Speaker:** Makoto Komiyama graduated from the University of Tokyo in 1970, and got his Ph.D. from the same University in 1975. After spending four years at Northwestern University (Illinois, USA) as a postdoctoral fellow, he became an assistant professor of the University of Tokyo, and then an associate professor of University of Tsukuba. In 1991, he became a professor of the University of Tokyo. In 2012, he moved from the University of Tokyo to Life Science Center of Tsukuba Advanced Research Alliance, University of Tsukuba. His main research area is bioorganic and bioinorganic chemistry, and the number of original papers is more than 500. He received Awards for Young Scientist from the Chemical Society of Japan, Japan IBM Science Award, Award from the Rare Earth Society of Japan, Inoue Prize for Science, Award from Cyclodextrin Society of Japan, The Award of the Society of Polymer Science, The Chemical Society of Japan Award, and SPSJ Award for Outstanding Achievement in Polymer Science and Technology, and others.

## Plenary Lecture 8

### **Fractalkine (CX3CL1) and Its CX3C Chemokine Receptor 1 (CX3CR1) in the Human Placenta and Amnion under Physiologic and Pathologic Conditions**



**Prof. Dariusz Szukiewicz**

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**Abstract:** Cytokines, including chemokines (chemotactic cytokines) mediating inflammatory and effector functions in the human utero-feto-placental unit forms a specific network. Our investigations of this network started in the early 1990s in the Laboratory of Placental Research of the Medical University of Warsaw, Poland.

Discovered in 1997, chemokine CX3CL1 (fractalkine, neurotactin) is the sole member of the CX3C class chemokines. CX3CL1 reveals both adhesive and chemotactic properties that makes it unique among the chemokines. This lecture, based on author's own scientific experience and the results of others, considers the role of CX3CL1 in physiologic and complicated human pregnancy.

The studies were focused on the relationship between spontaneous and lipopolysaccharide (LPS)-induced CX3CL1 production and its own receptor CX3CR1 local expression in the uterus, placenta and fetal membranes. Most of them were conducted in vitro, using cultures of isolated trophoblast cells and human amniotic epithelial cells (HAEC). Analyses of hypoxia influence and CX3CR1 blockade were included in the experimental projects. Studies revealed that endometrially derived CX3CL1 may be crucial for the attachment and invasion of the fetal trophoblast cells during implantation. Pathophysiology of the trophoblast in intrauterine growth retardation (IUGR) included significant reduction of both CX3CL1 synthesis and CX3CR1 expression. Hypoxia reduced production of CX3CL1 in trophoblast and HAEC cultures. However, in some inflammatory conditions (placentitis, chorioamnionitis) this effect was less evident, compared to the normal trophoblast or HAEC, respectively. Such a resistance to hypoxia was related with overexpression of the CX3CR1. In all experiments CX3CR1 blockade reduced or cancelled response to LPS. Future possibilities of the implementation of these results into clinical obstetric and gynecologic practice are discussed.

**Brief Biography of the Speaker:** Dr. Dariusz Szukiewicz is Professor of Medicine and Head of the Department of General and Experimental Pathology at the Medical University of Warsaw, Warsaw, Poland. He is Pathophysiologist and specialist in Obstetrics and Gynecology. He received his medical degree from the Medical University of Warsaw, and completed his Residency and Obstetrics/Gynecology Fellowship at the Medical Centre of Postgraduate Education, Warsaw, Poland. Development of his professional career included long term scholarships in the Institute for Basic Research in Developmental Disabilities (IBR), Staten Island, New York, USA and Department of Endocrinology & Reproduction at Erasmus University of Rotterdam, The Netherlands. He is teaching at the interfaculty courses for medical students (topic: Pathophysiology of the Reproductive System) as well as at postgraduate courses for doctors (topic: The Pathophysiology of Pregnancy), both running by the Medical University of Warsaw. Research profile of prof. Szukiewicz is focused on human placental mast cells and their mediators as well as the placental cytokine network. Based on self-constructed apparatus, he developed the original method of in vitro perfusion of the isolated placental lobule. He also significantly modified a computerized technique for quantitative morphometry. He has published over 100 scientific papers, 10 book chapters, over 150 conference abstracts, and possessed the relevant editorial work experience. He is an active member of The American Physiological Society (Teaching and Endocrinology Sections), European Histamine Research Society and Vice-president of The Polish Histamine Research Society. As an internationally recognized expert on placentology and histaminologist he serves on various Grant Review Committees and Editorial Boards worldwide.

## Plenary Lecture 9

### **In Silico Study of MicroRNA-Regulated Protein-Protein Interaction Modules in Human Disease and Plant Infected with Pathogen Systems**



**Professor Ka-Lok Ng**  
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**Abstract:** Living organisms are continuously subjected to infection by pathogens including bacteria and viruses. In general, a pathogen invades host in many ways. Many of such mechanisms involve protein-protein interactions (PPIs) in the host. PPIs are fundamental in every aspect of functions of living cells. It plays a crucial role in the infection processes, some critical inter-species interactions such as host-pathogen interactions and pathogenicity occur through PPIs. A strategy to gain a better understanding into the interaction and function of these proteins is to make use of the PPI data, and construct a set of interaction rules for disease proteins. MicroRNAs (miRNAs) are a class of small non-coding RNAs that bind to mRNA and induce either translation repression or mRNA degradation. There have been reports indicated that miRNAs could cause diseases in human or plant. The recent availability of both miRNA and PPI data has made it possible to study human or plant disease at a system level. In this lecture, we will discuss how to integrate the miRNA, mRNA, and PPI records to establish miRNA-regulated modules for both of human cancer and plant-pathogen systems. This type of tool could assist users in identifying disease-related miRNA targeting pathways. It is expected that these two study cases may provide some significant information to reveal biological processes involve in both of human and plant immunity systems.

**Brief Biography of the Speaker:** Dr. Ka-Lok Ng received the Honours diploma in physics from Hong Kong Baptist College in 1983, and the Ph.D. degree in theoretical physics from the Vanderbilt University at USA in 1990. He is a professor at the Department of Biomedical Informatics, Asia University, Taiwan, since August 2008. Beginning from Dec. 2009, he serves on the Editorial board of several international journals. He is the Editor-in-Chief, Associate Editor, Reviewer Editor and Guest Editor of the WSEAS Transactions of Biology and Biomedicine, IST Transactions of Biomedical Sciences and Engineering, Frontiers in Genomic Assay Technology and Current Bioinformatics respectively. Furthermore, he is also actively involved in reviewing manuscripts for international journals. He is the PI of several funded research grants in the last few years on the following research topics, (i) Identifying biological network motifs, (ii) MicroRNA studies—disease-related microRNA, regulation of protein complexes, and network motifs identification, (iii) An in silico and in vivo platform for predicting cancer-related microRNAs, (iv) MicroRNA as Oncogenes and its Targets Protein-protein Interactions. Dr. Ng has published articles in highly ranked journals, in the areas of PPI network, robustness study of biological networks, domain-domain interactions, non-coding RNA, protein function prediction and DNA data hiding method. His research interests include PPI network, mRNA-microRNA expression profile study, cancer-related microRNAs, physio-chemical properties of protein complexes, time series microarray data analysis and host-pathogen PPI studies.

## Plenary Lecture 10

### Electro Magnetic Stimulatin for Assisting Physiotherapy for Patients Suffering from Cerebral Palsy



#### Associate Professor Selcuk Comlekci

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**Abstract:** Cerebral Palsy (CP) neuromuscular diseases all over the world are also prevalent in childhood, causes permanent disability. Nowadays, there seem many new electro stimulation techniques on the cerebral muscles. Stimulation electrodes placed on the surface of the muscles provide low-frequency electrical currents with the help of spasticity. Another technique is trans cranial magnetic stimulation (TMS). Repetitive magnetic stimulation, used in recent years significant but temporary improvement in spasticity is a method that enables an electro stimulation. Although not yet completed this non-invasive method, in the future be used widely in the treatment of spasticity. Repetitive magnetic stimulation is given by the pads around the head, or particular area of cortex of the brain. This method uses fixed specific frequency magnetic fields. Meaningful relaxations are observed in muscle strain in patients after application of magnetic stimulation with its effect ongoing weeks, without any medication. It is well-known that Extremely Low Frequency (ELF) (0.1-300 Hz) or Low Frequency (LF) (up to 3.5 kHz) pulsed frequencies have beneficial effects on healing mechanisms to living tissues. ELF PEMF has a potential effects on bone and bone marrow tissue whereas LF PEMF can be used in order to nerve stimulation, cancer therapy, etc. Non-ionizing radiation may be useful by using appropriately. Specific frequencies, densities, and setups should be studied in cooperation with multi-disciplinary. In cerebral palsy treatment, appropriate safety precautions should be taken by a biomedical engineer and non-ionizing radiation hazard signs displayed prominently in the relevant work areas. For ensuring the safety of personnel, it may be necessary to carry out an Electromagnetic field survey to determine the level of RF and microwave fields in the work areas. Repetitive TMS intrinsically more powerful technique with attendant greater concerns for side-effects The measured levels should be lower than the specified limits. Illustrative cases utilizing navigated TMS are shown in presurgical mapping of the motor cortex, in therapy for depression, and in the follow-up of recovery from CP.

**Brief Biography of the Speaker:** Selcuk Comlekci received his B.S. degree in Electrical Engineering from Hacettepe University, in 1980, and M.Sc. degree from Science Institute of Suleyman Demirel University in 1996 and received his Ph.D. degree in Electrical and Electronics Engineering from Sakarya University, Turkey, in 2002. His research interests are RF Measurement and Instrumentation, Neuro-Fuzzy Applications, Soft Computing Techniques, Electromedical Design, EMI/EMC Applications, and general Biomedical Engineering. From 1982 to 1996, he was a Senior Engineer in Official Duties. Dr. Comlekci is associate professor at Department of Electronics and Communication Engineering, Suleyman Demirel University, Isparta, Turkey. He gives much kind of lectures both for undergraduate and graduate at his department. He is Senior Member of IEEE (2007), URSI, and BIOELECTROMAGNETICS Societies. Also he has current membership in IEEE, EMC Society and EMO (Turkish Chamber of Electrical Engineering). IEEE, ICES (International Committee on Electromagnetic Safety) chose him as a member of ICES TC95 Main Committee in 2008. He is the third member from Turkey in this committee. He is Independent Expert for FP7 (Independent Expert, FP7, Cordis, Expert Management Module, Number:EX2002B014021). He handle "Excellent Participant Award", '95 TCDC SHP Training Workshop (Funded by UNDP), 1995. He placed in "Listing in IBC Outstanding Scientists of the 21st Century, Inaugural Edition, 2007" and "Listing in Marquis Who's Who in Science and Engineering, 9th Edition, 2006-2007". Dr. Comlekci has founded the first Turkish Chapter of IEEE, Engineering in Medicine and Biology Society in 2005. He is currently Chair of the Chapter. He has published nearly 100 technical papers in journals and conference proceedings. He is conducting national and international Research Projects in Biomedical Engineering. He worked at Arizona State University, USA, Ira A. Fulton School of Engineering, Harrington Department of Bioengineering as an Adjunct Faculty and Visitor Scientist in Dr. Akay's Lab during 2007 for post-doc study.



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