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Part I Conference Schedule

Time: August 25-August 27, 2015

Location: Guangdong Hotel (Shanghai), Shanghai, China

Date	Time	Lobby		
Aug. 25	14:00-17:00	Registration		
Date	Time	Sakura Room (樱花厅)	Magnolia Room (白玉兰厅)	Lotus Room (荷花厅)
Aug. 26	08:30-12:00	Invited Session 1: Physics I Prof. Sergey B Leonov, Prof. Alexander Konyukhov, Prof. Peng-Sheng Wei, Prof. SMJ Mortazavi, Prof. Majid Ghassemi Chair: TBD Coffee Break: 10:30-10:50	Invited Session 2: Environment Prof. Liming Wen, Prof. Peimin Pu & Technical session 1: Environment I Chair: TBD Coffee Break: 10:30-10:45	Invited Session 3: Agriculture Dr. Yoichi Matsubara, Prof. Ekrem Gurel & Technical session 2: Agriculture I Chair: TBD Coffee Break: 10:30-10:45
	12:00-13:30	Lunch [328 Western Restaurant (328 西餐厅), 1 st Floor]		
Date	Time	Sakura Room (樱花厅)	Magnolia Room (白玉兰厅)	Lotus Room (荷花厅)
Aug. 26	14:00-18:00	Invited Session 4: Physics at the Nano-Scale: Surfaces, Interfaces and Bulk Prof. Yehuda B. Band, Prof. ZLATKO BAČIĆ, Prof. Guoxiang Huang, Prof. Yshai Avishai, Prof. Pilkyung Moon, Dr. Zhifan Zhou Chair: TBD Coffee Break: 16:00-16:20	Technical Session 3: Environment II Chair: TBD Coffee Break: 16:00-16:15	Technical Session 4: Agriculture II Chair: TBD Coffee Break: 15:45-16:00
	18:00-19:30	Dinner [328 Western Restaurant (328 西餐厅), 1 st Floor]		
Date	Time	Sakura Room (樱花厅)	Magnolia Room (白玉兰厅)	
Aug. 27	08:30-12:00	Technical Session 5: Physics I Chair: TBD Coffee Break: 10:15-10:30	Technical Session 6: Physics II Chair: TBD Coffee Break: 10:00-10:15	
	12:00-13:30	Lunch [328 Western Restaurant (328 西餐厅), 1 st Floor]		
Aug. 28	08:00-18:00	One-day Tour		

Part II Invited Speech

Invited Session 1: Physics I

Invited Speech: Dynamics of charge transfer in surface electric discharges in atmospheric air

Speaker: Prof. Sergey B Leonov, FlowPAC Institute, University of Notre Dame, USA

Time: 08:30-09:10, Wednesday Morning, August 26, 2015

Location: Sakura Room (樱花厅), 4th Floor, Guangdong Hotel (Shanghai)



Abstract

This work reveals essential details of plasma – surface interaction in atmospheric air that are important for a wide range of applications, beginning from airflow control and up to the high-voltage insulation. The talk discusses new results characterizing dynamics of development and kinetics of energy coupling in surface dielectric barrier discharge (SDBD), atmospheric air plasmas sustained over dielectric and weakly conducting liquid surfaces, over a wide range of time scales and electrical conductivities. The experiments have been conducted using nanosecond and microsecond pulse voltage waveforms of single and alternating polarities. Time-resolved discharge development and mechanisms of coupling with quiescent air are analyzed using conventional and advanced diagnostics, such as nanosecond gate camera imaging, high-sensitivity time-resolved schlieren imaging, surface charge sensors, Laser Differential Interferometry, others. The results demonstrate several new, critically important processes overlooked in previous studies. Specifically, it is shown that SDBD plasmas generate high-amplitude, broadband, stochastic, point-wise, near-surface perturbations on a long time scale ($>100 \mu\text{s}$) after the discharge pulse. The results demonstrate that surface plasma flow control authority may be significantly increased by using an optimized waveform.

Invited Speech: Geometrically exact theory of contact interactions – applications with various methods FEM and FCM

Speaker: Prof. Alexander Konyukhov, Kazan National Research Technical University (KNRTU-KAI), Russia

Time: 09:10-09:50, Wednesday Morning, August 26, 2015

Location: Sakura Room (樱花厅), 4th Floor, Guangdong Hotel (Shanghai)



Abstract

Geometrically exact theory of contact interactions is aiming on the development of the unified geometrical formulation of computational contact algorithms for various geometrical situations of contacting bodies leading to contact pairs: surface-to-surface, curve-to-surface, point-to-surface, curve-to-curve, point-to-curve, and point-to-point. The construction of the corresponding computational contact algorithms is considered in accordance with the geometry of contacting bodies in covariant and closed forms. These forms can be easily discretized within various methods such as the finite element method (FEM), the finite discrete method (FDM) independently of the order of approximation and, therefore, the result is straightforwardly applied within any further method: high order finite element methods, iso-geometric finite element methods etc. As particular new development it is shown also the possibility to easy combine with the Finite Cell Method.

Within FEM applications for contact between bodies with iso- and anisotropic surface, for contact between cables and curvilinear beams is straightforward. Recent developments include the various approaches to describe the "Curve-to-Surface" contact pair; and the "Solid Beam-to-Solid Beam" contact algorithm, fully resolving the problem of "parallel tangents" of "Curve-to-Curve" contact algorithm. Within FCM this method allows to describe the self-contact using only a few elements.

Invited Speech: The Effects of Surface Plasma on Heat Generation

Speaker: Prof. Peng-Sheng Wei, Beijing University of Technology, China; National Sun Yat Sen University, Chinese Taipei

Time: 09:50-10:30, Wednesday Morning, August 26, 2015

Location: Sakura Room (櫻花厅), 4th Floor, Guangdong Hotel (Shanghai)



Abstract

A laser beam incident on a metal can excite a surface plasma wave at the metal-free space interface. The surface plasma wave is an electromagnetic wave that propagates at the boundary between two media with different dielectric constants, leading to a distributed heat input on the surface. This study is thus to predict absorbed energy generated by surface plasmon produced by a pulsed laser beam for different incident angles, electrical and magnetic properties, and surface roughness. A systematical study of heating and melting of a micro-scaled component subject to a pulsed laser encountered in plasma and manufacturing technology is of interest.

Invited Speech: How Can Biological Methods Decrease Radiation Risk in Long-Term Manned Space Missions

Speaker: Prof. SMJ Mortazavi, Ionizing and Non-ionizing Radiation Protection Research Center (INIRPRC), Iran

Time: 10:50-11:30, Wednesday Morning, August 26, 2015

Location: Sakura Room (樱花厅), 4th Floor, Guangdong Hotel (Shanghai)



Abstract

Exposure to high levels of space radiation is an important concern for astronauts participating in long term space missions. Mortazavi et al have previously reported that screening of the candidates for long-term space missions by conducting Ground-based in vitro adaptive response studies before any mission can identify the individuals who respond well to low levels of ionizing radiation and reveal high magnitudes of radioadaptive response. They hypothesized that in space, chronic exposure to higher than on-Earth levels of radiation can greatly decrease radiation susceptibility of astronauts and help them better cope with the detrimental effects of the exposure to unpredictable sudden solar flares and coronal mass ejections. On the other hand, Mortazavi et al have recently reported that based on their findings on an animal model, radiofrequency-induced adaptive response can be used as a method for decreasing the risk of infection during deep space missions. In long-term deep space missions, astronauts will be exposed to both chronic space radiation and acute high doses of energetic radiation of solar particle events. It is well known that application of radioprotectors in space missions has very basic limitations such as their very short time window because they must be administered before exposure or at the time of exposure, their acute toxicity and considerable side effects. Therefore, Mortazavi et al. have recently shown that vitamin C can be administered 24 h after total-body irradiation to significantly increase the survival rate of the exposed animals. This finding may be a key method in decreasing the risk of high levels of radiation caused by solar particle events in long term space missions. This finding along with the above mentioned interventions, open new horizons in inducing biological radioresistance against unpredictable high levels of radiation due to solar particle events. The wide time window (24 h) investigated in our experiment, enables astronauts to firstly evaluate their radiation doses before making any decision on the type of medical interventions. As major solar particle events last for hours, astronauts will be able to consult expert radiation biologists via satellite telecommunication before choosing the dose of vitamin C and any other medical intervention.

Invited Speech: Numerical Investigation of Dynamic Behavior of Micro-Tubular Single-Chamber Solid Oxide Fuel Cell

Speaker: Prof. Majid Ghassemi, K.N. Toosi University, Iran

Time: 11:30-12:10, Wednesday Morning, August 26, 2015

Location: Sakura Room (櫻花厅), 4th Floor, Guangdong Hotel (Shanghai)



Abstract

Single-chamber solid oxide fuel cell (SC-SOFC) operates on premixed fuel and oxidant gaseous mixture diluted by a balance gas such as nitrogen in order to keep the mixture safe. Almost all reports show very low electrical efficiencies, less than 5%, for SC-SOFC. Therefore most researches are experimental and mainly focus on enhancing the efficiency of SC-SOFC. Recent numerical models are considering the micro-tubular single-chamber solid oxide fuel cell (MT-SC-SOFC). The models do not consider the dynamic behavior of MT-SC-SOFC, I.e. do not track cell temperature variation with time. Dynamic behavior of the MT-SC – SOFC enables the researchers to understand the mechanical stability of the cell during any proposed operation. The purpose of this lecture is to look at the dynamic behavior of a MT-SC-SOFC. The presentation covers the behavior of current density with voltage and look at other parameters that affect the efficiency of the cell.

Invited Session 2: Physics at the Nano-Scale: Surfaces, Interfaces and Bulk

Invited Speech: Dynamics of Dipole Moments Exposed to Noise: from Nitrogen Vacancy Centers in Diamonds to Entangled Qubits

Speaker: Prof. Yehuda B. Band, New York University - Shanghai, China; Ben-Gurion University, Israel

Time: 14:00-14:40, Wednesday Afternoon, August 26, 2015

Location: Sakura Room (櫻花厅), 4th Floor, Guangdong Hotel (Shanghai)



Abstract

Decoherence of quantum systems result due to interaction with their environment. For example, a spin decoheres by virtue of its interaction with the magnetic field arising from other spins. A stochastic equation approach to treating decoherence allows us to analytically solve for the average value of the spin as a function of time for various kinds of fluctuations. Moreover, this allows us to derive master equations. We address related decoherence problems, such as decoherence of nitrogen-vacancy centers in diamond and decoherence of entanglement of bipartite systems.

Invited Speech: Small Molecules in Nanoscale Cavities: Quantum Dynamics, Inelastic Neutron Scattering Spectra, and New Selection Rules

Speaker: Prof. ZLATKO BAČIĆ, New York University, USA

Time: 14:40-15:20, Wednesday Afternoon, August 26, 2015

Location: Sakura Room (櫻花厅), 4th Floor, Guangdong Hotel (Shanghai)



Abstract

The behavior of small hydrogen-containing molecules (H₂, HF, H₂O, CH₄) inside nanoscale cavities of diverse host materials, e.g., fullerenes, carbon nanotubes, clathrate hydrates, and metal-organic frameworks, has received a great deal of attention in recent years. In nanoscale confinement, the translational center-of-mass motions of the caged molecules are quantized and strongly coupled to the molecular rotations, which are also quantized. I will review our rigorous quantum treatment of the intricate coupled translation-rotation (TR) dynamics of the caged diatomic (H₂/HD/D₂) and polyatomic (CH₄) molecules in 5D and 6D, respectively. These calculations have revealed distinct spectroscopic signatures of the TR coupling, which were later observed in the infrared and Raman

spectra recorded for H₂ in C₆₀ and C₇₀. The TR eigenstates can be probed directly and with high selectivity by the inelastic neutron scattering (INS) spectroscopy. This has motivated our recent development of the methodology for accurate quantum simulations of the INS spectra of a hydrogen molecule in a nanocavity of an arbitrary shape, which incorporates the coupled TR wave functions from the 5D bound-state calculations. The INS spectra of H₂ and isotopologues inside the cages of C₆₀ and clathrate hydrates, and their temperature dependence, computed using this methodology have allowed us to interpret and assign the INS spectra measured for these systems for a range of temperatures. This work has led to the formulation of the new and unexpected selection rule for the INS spectroscopy of H₂/HD in a near-spherical nanocavity, the first ever to be established in the INS of discrete molecular compounds. In our recent INS study of H₂/HD confined inside C₆₀, the transitions predicted to be forbidden by the selection rule were found to be systematically absent from the measured INS spectra, thus confirming its validity.

Invited Speech: Lossless Surface Polaritons in a Metamaterial via Active Raman

Gain

Speaker: Prof. Guoxiang Huang, East China Normal University, China

Time: 15:20-16:00, Wednesday Afternoon, August 26, 2015

Location: Sakura Room (櫻花厅), 4th Floor, Guangdong Hotel (Shanghai)



Abstract

We propose a scheme to realize stable propagations of linear and nonlinear surface polaritons (SPs) by placing a N-type four-level quantum emitters at the interface between a dielectric and a negative-index metamaterial (NIMM). We show that in linear propagation regime SPs can acquire an active Raman gain (ARG) from a pump field, and a gain doublet appears in the gain spectrum of signal field induced by the quantum interference effect from a control field. The ARG can be used not only to completely compensate the Ohmic loss in the NIMM but also to acquire a superluminal group velocity for the SPs. We also show that in nonlinear propagation regime a huge enhancement of Kerr nonlinearity of the SPs can be obtained. As a result, ARG-assisted (1+1)- and (2+1)-dimensional superluminal surface polaritonic solitons with extremely low generation power may be produced based on the strong confinement of electric field at the dielectric-NIMM interface.

Invited Speech: Over-Screened Kondo Effect in Cold Fermionic Atom Systems

Speaker: Prof. Yshai Avishai, Ben Gurion University of the Negev, Israel

Time: 16:20-17:00, Wednesday Afternoon, August 26, 2015

Location: Sakura Room (樱花厅), 4th Floor, Guangdong Hotel (Shanghai)



Abstract

The feasibility of realizing overscreened Kondo effect in ultra-cold Fermi gas of atoms with spin $s \geq 3/2$ in the presence of a localized magnetic impurity atom is proved realistic. Specifying (as a mere example), to a system of ultra-cold ^{22}Na Fermi gas and a trapped ^6Li impurity, the mechanism of exchange interaction between the Na and Li atoms is elucidated and the exchange constant is found to be positive (antiferromagnetic). The corresponding exchange Hamiltonian is derived, and the Kondo temperature is estimated at the order of 500 nK. Within a weak-coupling renormalization group scheme, it is shown that the coupling renormalizes to the non-Fermi liquid fixed point. An observable displaying multi-channel features even in the weak coupling regime is the impurity magnetization that is negative for $T \gg T_K$ and becomes positive with decreasing temperature.

Invited Speech: Moiré Interference of Atomic Arrangement

Speaker: Prof. Pilkyung Moon, NYU-Shanghai, China

Time: 17:00-17:40, Wednesday Afternoon, August 26, 2015

Location: Sakura Room (樱花厅), 4th Floor, Guangdong Hotel (Shanghai)



Abstract

When repetitive structures are overlaid against each other, a new superimposed moiré pattern emerges and is observed in various macroscopic phenomena. Recent discovery of atomically thin planar crystalline lattices, such as graphene, hBN, and MoS₂, enabled the fabrication of artificial layered-structures. In case the lattice periods do not coincide between the layers, the moiré interference between the lattices makes a new class of superlattice where the influence of the exceptionally long-period interlayer interaction is crucial to determine its electronic structures.

In this talk, I will first discuss the impact of moiré superlattice formation for graphene systems and for hybrid layered-structures, and show that their electronic and optical properties are significantly altered if compared with those of the pristine graphene. I will show that this kind of superlattice is the first example of crystalline solids of which material properties are mainly governed by the moiré interference of atomic arrangement rather than the arrangement itself. Then, I will show that the moiré superlattice affords a unique opportunity to study the fractal phenomenon, aka Hofstadter's butterfly, by using crystalline solids. Finally, I will show that the theoretical model on general moiré superlattices provides a unique opportunity to rigorously investigate the electronic structures of one-dimensional moiré structures such as multi-walled carbon nanotubes.

This work was supported by New York University Shanghai and also by East China Normal University.

Invited Speech: Coherent Stern-Gerlach matter-wave interferometer on an atom chip

Speaker: Dr. Zhifan Zhou, Ben-Gurion University, Israel

Time: 17:40-18:20, Wednesday Afternoon, August 26, 2015

Location: Sakura Room (樱花厅), 4th Floor, Guangdong Hotel (Shanghai)

Abstract

In the Stern-Gerlach effect, a magnetic field gradient splits particles into spatially separated paths according to their spin projection. Here we exploit this effect to create coherent spatial superpositions for matter-wave interferometry [1]. Our scheme uses pulsed magnetic field gradients, generated by currents in an atom chip wire, and radio-frequency Rabi transitions between Zeeman sublevels. We transform an atomic Bose-Einstein condensate into a superposition of spatially separated propagating wavepackets and observe spatial interference fringes with measurable phase repeatability. The method is versatile in the different stable manipulations of atomic spin states and the different available splitting geometries. These features make our method a good candidate for supporting a variety of future applications and fundamental studies. I will review recent advances.



Invited Session 3: Environment

Invited Speech: Promoting Active Transportation: Lessons for China from International Studies

Speaker: Prof. Liming Wen, University of Sydney, Australia; University of Tongji, China

Time: 09:00-09:45, Wednesday Morning, August 26, 2015

Location: Magnolia Room (白玉兰厅), 4th Floor, Guangdong Hotel (Shanghai)



Abstract

There has been a rapid increase in the number of motor vehicles on the road in China with rapid urbanization over the past two decades. The increasing reliance on private motor vehicles has led to traffic congestion and air pollution, and makes a significant contribution to greenhouse gas emissions. In contrast, active transportation, which relies less on the use of cars, and more on alternatives such as public transportation, walking and cycling, can potentially not only lead to a cleaner environment, but also healthy population.

Evidence linking active transportation directly to health outcomes has been well documented internationally, but it has not been examined extensively in China. More research, therefore, is needed to better understand the important correlations between active transportation and population health, and to develop effective strategies to promote active transportation, both in China and more broadly. In this presentation I will present evidence of the health benefits associated with promoting of active transportation and potential strategies to promote active transportation among various communities. In particular, lessons for China from international studies in this area are presented.

Invited Speech: Strategy & Techniques for Restoration of Healthy Aquaeosystem from Toxic Super Eutrophic Water Body

Speaker: Prof. Peimin Pu, Nanjing Institute of Geography & Limnology, Academia Sinica, China

Time: 10:50-11:35, Wednesday Morning, August 26, 2015

Location: Magnolia Room (白玉兰厅), 4th Floor, Guangdong Hotel (Shanghai)



Abstract

There are complex river-lake systems in the Taihu Lake catchment with total water surface area of 6174.7 km², and population density of 1079/km², including Taihu Lake water

surface area of 2,338 km². The water systems in this catchment have healthy aquaeosystems during long history. However, in some riverlets in this catchment the water quality was estimated as “acute toxicity for higher organisms” and over standards for many heavy metal elements content; so there were no any living plants and macro organisms in the water body, because there were developed a series of industry with abundant release of heavy metal and difficult decomposition organic chemical components along the riverlets during last decades. The even more serious situation was observed in sediments of the riverlets. How to restore such riverlet into a healthy aquaeosystem with abundant plants and higher organisms? The main strategy and techniques are described in this paper as summarizing report of engineering in a riverlet in Wuxi New District during last years, which leads to restore the aquaeosystem into a healthy one with abundant surface plant cultured on floating islands and observed living fish, lobster, frog, toad, mollusk and others in the riverlet. The main techniques are: 1) softwall buffer technic; 2) floating eco-island technic by using which can culture any plant which can be cultured in solution; 3) immobilized nitrogen cycle bacteria (INCB) technic; 4) tattering esters and other big-molecul organic chemicals by using electronic pulse technic and photosensitisation technic; 5) mist spray facility technic for improving dissolved oxygen in deep water layers; 6) technic for buffering and suppressing H₂S release from water; 7) the appropriate portion of surface with cultured plant to the total water surface area is 1/3; 8) Cress [*Oenanthe Ljavanica* (Bl.) DC.] and *Myriophyllum verticillatum* L. may be cultured in Taihu Lake catchment during the whole year as main plants with mosaic combination of other supplement plants in different seasons.

Invited Session 4: Agriculture

Invited Speech: Bioregulation Potential of AMF Symbiosis on Biotic and Abiotic

Stresses in Horticultural Plants

Speaker: Dr. Yoichi Matsubara, Gifu University, Japan

Time: 09:00-09:45, Wednesday Morning, August 26, 2015

Location: Lotus Room (荷花厅), 4th Floor, Guangdong Hotel (Shanghai)



Abstract

Arbuscular mycorrhizal fungi (AMF) are known as wide-spectrum biocontrol agent that have the effect of promoting host plant growth mainly by enhancing phosphorus uptake through symbiosis. AMF is considered to develop a sustainable ecofriendly strategy to overcome biotic stresses in plant production as well as safe agricultural production. As for the bioregulation of biotic and abiotic stresses via AMF, few reports have been demonstrated and the mechanisms still have many unclear points. In this lecture, first, the events on plant adaptation to biotic and abiotic stresses through AMF symbiosis and the mechanisms in mycorrhizal horticultural plants are introduced. Mycorrhizal asparagus and strawberry plants showed induced systemic resistance (ISR) to *Fusarium* diseases, and symbiosis-specific increase in free amino acids such as GABA (gamma-amino butyric acid) suppressed *Fusarium* propagation in vitro. On the other hand, tolerance to anthracnose appeared in mycorrhizal strawberry plants, and the increases in followed antioxidative ability, SOD (superoxide dismutase), APX (ascorbate peroxidase) activity, contents of polyphenol and ascorbic acids, DPPH (1,1-diphenyl-2-picrylhydrazyl) radical scavenging activity, were closely associated with the tolerance. Similar relationships have been found in mycorrhizal asparagus to *Fusarium* crown and root rot with SOD isozyme and PCR-SSCP analysis of *Fusaria*, and cross-tolerance to heat stress and anthracnose in mycorrhizal cyclamen with proteomic analysis. As for the histological aspects, short cells in asparagus root dimorphic exodermis regulated AMF and *Fusarium* entry as passage cells, resulting in the disease tolerance. On the other hand, salinity tolerance occurred in mycorrhizal asparagus, tomato and strawberry plants, and increase in antioxidative activity for the oxidative stress caused by Na⁺ and regulation in ion transport of Na⁺ are associated with the tolerance. From these findings, mycorrhizal plants are suggested to show biotic and abiotic stress tolerance; and physiological and histological factors brought about by the mycorrhization could be involved with the tolerance.

Invited Speech: Dynamic Implementations of Plant Tissue Culture Techniques for Secondary Metabolite Production and Breeding Strategies

Speaker: Prof. Ekrem Gurel, Abant Izzet Baysal University, Turkey

Time: 09:45-10:30, Wednesday Morning, August 26, 2015

Location: Lotus Room (荷花厅), 4th Floor, Guangdong Hotel (Shanghai)



Abstract

Plant tissue culture techniques are an integrated discipline of plant biotechnology with several fields of applications for plant breeding and metabolite production studies. Such techniques involve i) direct and indirect regeneration protocols producing callus, adventitious organs (shoots or roots) or somatic embryos, ii) production of valuable biomass and secondary plant metabolites, iii) artificial/synthetic seeds developed from somatic embryos or meristematic tissues (especially nodal segments with auxillary meristems), and iv) genetic transformation studies via direct or direct gene transfer technologies. This presentation will mainly cover the applied aspects of all these implementations named above in several plant species, most of which having medicinally significant properties, including *Achillea millefolium*, *Lythrum salicaria*, *Cichorium intybus*, *Digitalis lamarckii*, *D. ferruginea* subsp. *ferruginea*, *D. davisiana*, *D. cariensis*, *D. trojana*, *Physalis peruviana*, *Beta vulgaris*, and *Sorghum bicolor*. Based on our own optimized protocols and published results, a general outline regarding the dynamic implementations of plant tissue culture techniques in the above mentioned plant species will be drawn, with a very special emphasis on their commercial potentials.

Technical Session 1: Physics I

Invited Speech: Multi-Scale Mechanics of Microtubules

Speaker: Prof. Kim Meow Liew, City University of Hong Kong, Hong Kong (China)

Time: 8:30-9:10, Thursday Morning, August 27, 2015

Location: Sakura Room (樱花厅), 4th Floor, Guangdong Hotel (Shanghai)



Abstract

A computational modeling of the biomechanical behavior of microtubules is carried out. A single microtubule contains up to billions of different types of atoms. To analyze a microtubule, the challenge is to develop a practical theory to describe this kind of poly atomic structure with both result accuracy and computing efficiency. This work proposes a multi-scale technique based on the intrinsic inter atomic potential and a continuum description method, and hence the overall mechanical performance of microtubules could be studied. The work begins with evaluation of inter atomic potential using a homogenization technique; large numbers of different types of atoms are replaced by a product of volume densities and the occupied space volumes. The potential energy stored between the basic sub unit of microtubules and tubulindimmers is obtained from a mutual definite integral process between

pair bodies. Without tracing every single atom, deformation of macro molecules components is determined by the proposed fictitious bond connecting central points of neighboring bodies. A mesh-free theoretical and numerical framework based on a higher-order Cauchy-Born rule under the higher-order gradients continuity has been specifically constructed. This simulation scheme is generally applicable and can be employed to study the overall mechanical behavior of microtubules. With the proposed methodology, elastic properties, transverse and longitudinal buckling and post-buckling behaviors, vibration modes, natural frequencies and dynamic responses are numerically simulated.

Part III Technical Sessions

Technical Session 1: Environment I

Session Chair: TBD

Magnolia Room (白玉兰厅)

10:45-12:00, Wednesday Morning, August 27, 2015

ID	Paper Title	Author	Affiliation
10:30-10:45	Coffee Break		
1-1 10:45-11:10	BIOTAIR: Biofiltration for Road Traffic Emissions, Application to A Road Tunnel	Jean-fran çois PETIT	CEREMA Dter IDF, France
1-2 11:10-11:25	Industrialization Emission (Trace Metal, Nitrogen and Phosphorus) Modified Coastal Climate	Tong Yongpeng	Shenzhen University, China
1-3 11:25-11:40	Sensitivity of Escherichia coli to UV Disinfection after Freezing	Wa Gao	Lakehead University, Canada
1-4 11:40-11:55	Biosurfactant facilitated remediation: isolation of biosurfactant producers, its economic production and enhanced soil washing	Baiyu Zhang	North China Electric Power University

Technical Session 2: Agriculture I

Session Chair: TBD

Lotus Room (荷花厅)

10:45-12:00, Wednesday Morning, August 27, 2015

ID	Paper Title	Author	Affiliation
10:30-10:45	Coffee Break		
2-1 10:45-11:00	INFLUENCE OF HEATING TIME OF SHEA NUTS (Vitellaria paradoxa) ON SOME CHEMICAL PROPERTIES OF SHEA BUTTER	Vadlya T. Tame	Modibbo Adama University of Technology
2-2 11:00-11:15	Effect of Some Environmental Factors on Incidence and Severity of Angular Leafspot of Cotton in Yola and Mubi, Adamawa State,	H. Nahunnaro	Modibbo Adama University of Technology

Nigeria			
2-3 11:15-11:30	Effect of Mechanical and Chemical Scarification on Germination of Dodder (<i>Cuscuta campestris</i> Yunck.) Seed	Aliyu B. Mustapha	Modibbo Adama University of Technology
2-4 11:30-11:45	Wheat Yield Response to Water Deficit under Central Pivot Irrigation System using Remote Sensing Techniques	Mohammed El-Shirbeny	National Authority for Remote Sensing and Space Sciences (NARSS)
2-5 11:45-12:00	Application of Enzyme extracted from Aloe Vera plant in Chemical Pretreatment of cotton Knitted Textile to Reduce Pollution Load	D. Jothi	SSM. College of Engineering

Technical Session 3: Environment II

Session Chair: TBD

Magnolia Room (白玉兰厅)

14:00-18:00, Wednesday Afternoon, August 26, 2015

ID	Paper Title	Author	Affiliation
3-1 14:00-14:15	Analysis of Long-Term Tropospheric Ozone Changing Trends and Main Affecting Factors over Southern China based on Satellite Measurements between 1979-2013	Chen Xi	China University of Geosciences
3-2 14:15-14:30	A Comparison of Two Downscaling Methods for Precipitation in China	Na Zhao	Chinese Academy of Sciences
3-3 14:30-14:45	Polar Bears in Antarctica? An Analysis of Treaty Barriers	Madison Hall	Michigan State University
3-4 14:45-15:00	The Spatial and Temporal Variation Characteristics of CH ₄ and CO ₂ Emission Flux under Different Land Use Types in The Yellow River Delta Wetland	Qingfeng Chen	Shandong Provincial Analysis Test Center
3-5 15:00-15:15	Overview on Changes of Precipitation Extremes in Romania	Aristita Busuioc	National Meteorological Administration, Romania
3-6 15:15-15:30	Space-Time Variability of The Pedological Drought in Romania	Elena Mateescu	National Meteorological Administration, Romania

3-7 15:30-15:45	Mesocosm assessment of Stability Habitat for Halophyte	SUNG HOON RYU	Pukyong National University
3-8 15:45-16:00	Impacts of Climate and Land-Use Changes on Soil Erosion Due to Altered Soil Properties	Anne Routschek	Technical University Freiberg
16:00-16:15	Coffee Break		
3-9 16:15-16:30	The Baikal Basin as a Transboundary Ecological and Economic System	Darima Darbalaeva	Baikal Institute for Nature Management SB RAS
3-10 16:30-16:45	Instruments for Conservation and Sustainable Use of Water Resources in the Baikal Natural Area	Taisiya Bardakhanova	Baikal Institute for Nature Management SB RAS Management
3-11 16:45-17:00	Demonstration of The Nearly Zero Energy Building Concept	Henrik Gjerkeš	Building and Civil Engineering Institute ZRMK
3-12 17:00-17:15	Using GIS and Kriging to Analyze The Spatial Distributions of The Health Risk of Indoor Air Pollution	Kevin Liu	Ming Chi University of Technology
3-13 17:15-17:30	A Study of Poverty Problems in Urban Area	Lidya Agustina	Maranatha Christian University
3-14 17:30-17:45	The Role of Good University Governance Implementation for Ethical Behavior of Accounting Students	Kwang En Tan	Maranatha Christian University
3-15 17:45-18:00	The Role of University Social Responsibility in Implementing Corporate Social Responsibility	Meyliana	Maranatha Christian University
3-16 18:00-18:15	Waste Cooperative: A Solution for Environmental Pollution Problem	Setin Tioe	Maranatha Christian University

Technical Session 4: Agriculture II

Session Chair: TBD

Lotus Room (荷花厅)

14:00-18:00, Wednesday Afternoon, August 26, 2015

ID	Paper Title	Author	Affiliation
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4-1 14:00-14:15	Residue of Thiram in Oil Palm Nursery under Tropical Conditions: A Fate Study	Maznah Zainol	Malaysian Palm Oil Board
4-2 14:15-14:30	Determination of Glufosinate Ammonium (GLUF) in Crude Palm Oil (CPO): High Performance Liquid Chromatography with Fluorescence Detector (HPLC-FLD)	Halimah Muhamad	Malaysian Palm Oil Board
4-3 14:30-14:45	Study on The Germination and Growth of The Wheat Seeds Coated with A Special Functional Additives	Qingxun Ji	Henan Naian biological Technology Co., Ltd.
4-4 14:45-15:00	Cold pretreatment improves in vitro gynogenesis of sugar beet (<i>Beta vulgaris</i>)	Songul Gurel	Sugar Institute, Plant Breeding Department
4-5 15:00-15:15	Novel Tools for The Control of Horticultural Pests: Pesticide Treated Nets	Elisa Vi ñuela	Technical University of Madrid (UPM)
4-6 15:15-15:30	Antioxidant traits and Anthocyanin content of Qare-Qat (<i>Vaccinium arctostaphylos</i>) and Tomato fruits	Shahram Sedaghatoor	Islamic Azad University
4-7 15:30-15:45	Growth Promotion and Induction of Drought Stress Tolerance in Maize (<i>Zea mays</i> L.) by Fluorescent pseudomonads	Mohammad Hossein Ansari	Islamic Azad University
15:45-16:00	Coffee Break		
4-8 16:00-16:15	Agronomic Performance of High Value Crops in High Tunnel in Wyoming, USA	M. Anowarul Islam	University of Wyoming
4-9 16:15-16:30	Expression of genes affecting skin coloration and sugar accumulation in apple fruits at ripening stages in high temperatures	Hae Keun Yun	Yeungnam University
4-10 16:30-16:45	Relationship between antioxidant intake from foods (DAI) and antioxidants in plasma in Krakow inhabitants	Emilia Kolarzyk	Jagiellonian University
4-11 16:45-17:00	Poland: Water Safety in Food Safety Context	Jerzy Marcinkowski	Poznan University of Medical Sciences
4-12 17:00-17:15	The difference between glucose and fructose on the generation of volatile compounds with	Heng Yuan	China Agricultural University

glutamic acid by Maillard reaction			
4-13 17:15-17:30	Application of Gfpuv Labeled Cronobacter Sakazakii for Evaluation its Survival during Cornstarch Processing	Siti Nurjanah	Bogor Agricultural University
4-14 17:30-17:45	Palm Oil Microencapsulation by Coacervation, Thin Layer Drying, and Silica Dioxide Absorption Technique	Nur Wulandari	Bogor Agricultural University

Technical Session 5: Physics I

Session Chair: TBD

Sakura Room (櫻花厅)

8:30-12:00, Thursday Morning, August 27, 2015

ID	Paper Title	Author	Affiliation
Invited Speech 8:30-9:15	Multi-Scale Mechanics of Microtubules	Prof. Kim Meow Liew	City University of Hong Kong
5-1 9:15-9:30	The element-free improved moving least-squares Ritz method for some problems	Lu-Wen Zhang	Shanghai Ocean University
5-2 09:30-09:45	Mechanical Buckling of Epoxy/Clay Nanocomposite Engesser-Timoshenko Beams	Ali Reza Nezamabadi	Islamic Azad University
5-3 09:45-10:00	Free Vibration of Epoxy/Clay Nanocomposite Beams Based On the First Order Shear Deformation Theory	Mahdi Karami Khorramabadi	Islamic Azad University
5-4 10:00-10:15	Simulation of the Dynamics of an Inextensible Kirchhoff Rod Based on Discrete Variational Integrator	Zhujiang Wang	Texas A&M University-College Station
10:15-10:30	Coffee Break		Coffee Break
5-5 10:30-10:45	Unsteady flows characteristics in a channel with oblique plates	yinxiao zhan	Kyungpook National University, South Korea
5-6 10:45-11:00	DEM simulations of granular soils under un-drained triaxial compression and plane strain	guobin gong	Xi'an Jiaotong-Liverpool University (XJTLU)

5-7 11:00-11:15	Generalized Dynamic Modeling of Iron-Gallium Alloy (Galfenol) for Transducers	Yimin Tan	University of Toronto
5-8 11:15-11:30	Development and Application of Two-Dimensional Numerical Model on Shallow Water Flows Using Finite Volume Method	Szu-Hsien Peng	Chienkuo Technology University
5-9 11:30-11:45	CFD Numerical Simulation of Hydrodynamics in a Rotor-stator Reactor for Biodiesel Synthesis	Zhuqing Wen	Lodz University of Technology
5-10 11:45-12:00	Using Finite Element Analysis and Experimental Analysis on Vibration of a Piezoelectric Micro Pump	Bo-Wun Huang	Cheng Shiu University
5-11 12:00-12:15	A Central Numerical Scheme to 1D Green-Naghdi Wave Equations	Kezhao Fang	Dalian University of Technology

Technical Session 6: Physics II

Session Chair:

Magnolia Room (白玉兰厅)

08:30-12:00, Thursday Morning, August 27, 2015

ID	Paper Title	Author	Affiliation
6-1 08:30-08:45	Research on the Application in Glazed Tile Heating of the Low-carbon Catalytic Combustion Furnace of Natural Gas	Ran Li	Beijing University of Civil Engineering and Architecture
6-2 08:45-09:00	Performance of Heat Pipe Utilized for Atmospheric Air Heating	Mohammed Moustafa	College of Engineering – Jazan University
6-3 09:00-09:15	Development of Hybrid Device for Photovoltaic Power Generation and Heating	Dong Il Lee	Korea Advanced Institute of Science and Technology
6-4 09:15-09:30	Transient natural convection flows of cold water in a vertical channel	Ryoichi Chiba	National Institute of Technology, Asahikawa College
6-5 09:30-09:45	Modeling of heat recovery from vehicle exhaust gasses	Tomasz Wejrzanowski	Warsaw University of Technology

6-6 09:45-10:00	The Effect of Ultrasound Treatment on the Nail Fold Microcirculation	Weidong Song	Henan University of Science and Technology
6-7 10:00-10:15	Simulation on Cavitation Bubble Collapsing with Lattice Boltzmann Method	Yang Jia	Shaanxi Normal University
10:15-10:30	Coffee Break		
6-8 10:30-10:45	Effects of high hydrostatic pressure on lesions in ex vivo bovine livers generated by high intensity focused ultrasound	Min He	Chongqing Medical University
6-9 10:45-11:00	Properties of a Lens-focused Transducer Based on Piezoelectric Composites	Huanan Li	Chongqing Medical University
6-10 11:00-11:15	Improvement of data acquisition rate in PA systems using CDMA techniques	Carlos Julián Mart ín-Arguedas	University of Alcala
6-11 11:15-11:30	Investigation of the parameters of low temperature pulse plasma discharge in relation to air cleaning units	Ponizovskiy Alexander	FMKB "Horizon" SC "SPC Gas Turbine" Salute "
6-12 11:30-11:45	Knowledge of Radiation Dose and Possible Risks among Medical Doctors	Farideh Zakeri	Iranian Nuclear Regulatory Authority
6-13 11:45-12:00	Ensuring uniformity of measurements of absorbed dose intensity of the photon and electron radiation in radiation technologies	Oleg Kovalenko	FSUE "VNIIFTRI"
6-14 12:00-12:15	The Formation of Neutron Fields from Radionuclide Neutron Sources for The Purposes of Metrological Support of Measurements of Dosimetric Quantities	Sergey Fedorov	FSUE "VNIIFTRI"
6-15 12:15-12:30	Development and Application of Portable Reference Radiation Fields with Multi-Point Single-Energy Photon	Lin Quan	Beijing Institute of Tracking and Telecommunications Technology
6-16 12:30-12:45	Modified Tunneling Radiation of Fermions from a Spherically Symmetric Spacetime with Dark Matter	Zhongwen Feng	University of Electronic Science and Technology

Part IV Abstracts

Technical Session 1: Environment I

Article ID: PTT2015Aug_10005

Title: BIOTAIR: Biofiltration for Road Traffic Emissions, Application to A Road Tunnel

Name: Jean-françois PETIT

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Abstract

Evaluation on a real site, using a multi-parameters approach (air, water, soil, microbiology, LCA), of the possibility to use biofiltration for treating road airborne pollutants.

Article ID: PTT2015Aug_10008

Title: Industrialization Emission (Trace Metal, Nitrogen and Phosphorus) Modified Coastal Climate

Name: Tong Yongpeng

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Abstract

Objectives: As a result of global warming, precipitation is likely to increase at certain area (high latitudes). However, the mechanisms by which human activity influences global climate change are far from completely understood. We try to analyze the relationship between industrial emission (trace metal, nitrogen and phosphorus) and climate signature (precipitation) by Chinese industrialization progresses. **Methods:** Mainly by using the public data from Bulletin of Environment in China, Bulletin of Marine Environmental Status of China and some data of our experiments to get the analyzed result. **Results:** Annual average temperature in China after industrialization is significantly increased, whereas, annual average precipitation in China after industrialization is no significantly difference.

Phytoplankton increases evaporation of seawater and the relative humidity. Phytoplankton biomass will be different in different stages of environmental pollution in coastal areas. The higher relative humidity of Guangzhou (near the second-third class pollution coast-Shenzhen coast with higher phytoplankton biomass) has higher precipitation, in contrast, lower relative humidity of Shanghai (near the inferior fourth class Zhejiang coast) has lower precipitation recent years.

Conclusions: Industrial emissions may have two competing effects: one is to promote the growth of phytoplankton and then causing higher seawater evaporation rates and precipitation; another is to decrease water vapour pressure by serious pollution which then reduces the seawater evaporation rate and precipitation. With temperature increasing, the precipitation is likely to increase only at low pollution area (high latitudes).

Article ID: PTT2015Aug_10007

Title: Sensitivity of Escherichia coli to UV Disinfection after Freezing

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Abstract

UV disinfection is an established technology for water and wastewater treatment. More and more municipal wastewater treatment plants in Canada have converted from chemical-based disinfection, such as chlorination, to UV irradiation. Freezing has been recognized as an effective method for various water and wastewater treatment, sludge conditioning, sludge pretreatment and seawater desalination, especially in the regions where natural freezing is available. After freezing treatment of water or wastewater, UV and/or chemical disinfection may

be required to meet final product water quality. Also, waterborne pathogens in natural surface waters that freeze and thaw during fall and spring months may survive for days before going through UV disinfection processes at treatment plants. Numerous studies have been conducted in the past few decades to find correlations between various water quality parameters, bacterial sensitivity, and UV disinfection efficiency. However, the impact of cold temperatures on UV disinfection processes, especially, the responses of the pathogenic microorganisms after experiencing freezing to UV is rarely studied.

This study was carried out to investigate the effect of freezing on the response of two different strains of *E. coli* bacteria to UV irradiation. Cells of *E. coli* O157:H7 strain 961019 and *E. coli* ATCC (American Type Culture Collection) strain 25922 were frozen at -7, -15 and -30 °C with one, three and five freeze thaw cycles prior to UV irradiation. A collimated beam device with a low pressure mercury vapour lamp was used as a UV source. UV irradiation started as soon as the samples were melted. The UV inactivation levels of the freezing treated *E. coli* cells were compared with those without freezing (the controls). The experimental results revealed that freezing affected the sensitivity of the test microbes to UV light and the effect seems to be strain dependent. Significantly increased resistance to UV light was observed in the freezing treated cells as compared to the control samples. The ATCC strain 25922 showed more resistance to UV irradiation than the O157:H7 strain 961019 in most cases. The O157:H7 strain 961019 became more resistant to UV with increased freeze thaw cycles. Overall, the experimental results suggested that UV inactivation could be less effective on *E. coli* cells that pre-exposed to freezing.

Article ID: PTT2015Aug_10021

Title: Biosurfactant facilitated remediation: isolation

Technical Session 2: Agriculture I

Article ID: ICAS2015Aug_10013

Title: INFLUENCE OF HEATING TIME OF SHEA NUTS (*Vitellaria paradoxa*) ON SOME CHEMICAL

of biosurfactant producers, its economic production and enhanced soil washing

Name: Baiyu Zhang

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Abstract

A growing environmental awareness as well as the unique properties of biosurfactants such as high surface activities, low critical micelle concentrations (CMCs), stable performance and low toxicity allow their use and possible replacement of chemically synthesized surfactants in a great number of industrial operations. In this study, petroleum oil contaminated seawater and sediment samples were collected. Biosurfactant producing bacteria were then isolated from collected samples using hexadecane and diesel as the only carbon sources. The predominant producers isolated were belong to *Bacillus*, *Rhodococcus*, *Acinetobacter*, *Pseudomonas*, and *Streptomyces*. The best performer with a high biosurfactant production rate and strong emulsification index was selected. Various carbon and nitrogen sources were investigated for the economic production of biosurfactants. Generated biosurfactant was further purified and analyzed for physic-chemical characters. The critical micellar concentration (CMC) of generated biosurfactants was determined. A thin layer chromatography (TLC) analysis indicated that the purified products were a mixture of carbohydrate and lipid. The biosurfactant was produced using selected carbon and nitrogen sources and further studied as a soil washing agent to enhance crude oil removal in a column system. Factors affecting the washing efficiency were examined. The results indicated that biosurfactants can effectively facilitate the cleanup of oil-contaminated soils.

PROPERTIES OF SHEA BUTTER

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Abstract

The experiment was conducted in the laboratories of the

Departments of Chemistry and Animal Health and Production Technology, Adamawa State University Mubi, Nigeria. The experiment was replicated three times in a Randomized Complete Block Design (RCBD) and consisted of six heating time 30, 60 and 120 minutes boiling, 30, 60 and 120 minutes roasting and one control. Data were collected on acid value, free fatty acid, iodine value, peroxide value, saponification value and unsaponifiable matter. The data collected were analyzed statistically using Generalized Linear Model (GLM) procedure of statistical analysis system (SAS). The means that were significantly different were separated using Least Significant Difference (LSD). The results showed that there were highly significant differences ($P \leq 0.01$) among the treatments. The highest Acid Value (AV) of 3.53 and 3.64 were recorded by heating time at 120 minutes of boiling and 120 minutes of roasting. Heating time at 30 minutes of boiling, 30 minutes roasting, 60 minutes boiling and 60 minutes roasting recorded lower Free Fatty Acid (FFA) values of 1.52, 1.55, 1.57 and 1.58, respectively. Heating time at 60 minutes of roasting and 60 minutes of boiling recorded the highest Iodine value (IV) of 43.80 and 43.53, respectively. Based on the results of this study, it can be concluded that heating time of 30 or 60 minutes by boiling or roasting are better than longer heating times for Shea butter extraction.

Article ID: ICAS2015Aug_10016

Title: INFLUENCE OF HEATING TIME OF SHEA NUTS (*Vitellaria paradoxa*) ON SOME CHEMICAL PROPERTIES OF SHEA BUTTER

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Abstract

Environmental factors such as relative humidity and rainfall generally have been found to increase the incidence, rate of spread and severity of diseases thereby reducing yield of crops. Study was conducted on five cotton varieties, artificially inoculated with bacterial blight pathogen to determine the effects of rainfall and relative humidity on incidence and severity of angular leafspot (ALS) and yield of seed cotton in Yola and Mubi.

Results showed that the severity of ALS was higher in Yola (58.65%) at 13 WAS is assumed to be due to higher relative humidity (76-87%) and low rainfall (2 – 40.6 mm) which favours disease development as against that of Mubi location which recorded lower severity (51.11%) due to lower relative humidity (42 – 55%) and rainfall (37 – 73 mm). Results further revealed that SAMCOT-8 had low incidence and severity in both locations with an incidence of 66% and severity of 39% of ALS at 13 WAS in Yola and 82% incidence and 42% severity in Mubi. SAMCOT-10 and SAMCOT-9 varieties were found to be highly susceptible to the disease at the same period. SAMCOT-8 recorded the highest yield of 390.00 kgha-1 in Yola and 868.09 kgha-1 in Mubi while lowest yields of 227.17 kgha-1 was observed on SAMCOT-10 in Yola and 461.61 kgha-1 was obtained on SAMCOT-9 in Mubi. There is need to conduct further trials in these locations to confirm the reaction of these varieties.

Article ID: ICAS2015Aug_10019

Title: INFLUENCE OF HEATING TIME OF SHEA NUTS (*Vitellaria paradoxa*) ON SOME CHEMICAL PROPERTIES OF SHEA BUTTER

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Abstract

Experiments were carried out to evaluate the effect of seed treatment on germination of *Cuscuta campestris*. This may provide the possible ways to overcome the problem of dormancy in *Cuscuta campestris*. The experiment were conducted in the Laboratory of Crop Production and Horticulture, Modibbo Adama University of Technology, Yola, Adamawa State, using wet heat treatment, mechanical scarification, gibberellic acid (GA3) and tetraoxosulphate (VI) acid (H₂SO₄). For wet heat the treatments were control, 1 second, 2, 3, 4, and 5 seconds. For the mechanical scarification the treatments were unscarified, scarified using sandpaper and scarified using gravel arranged in a completely randomized design (CRD) replicated four times. For the tetraoxosulphate (VI) acid (H₂SO₄) scarification the treatment were control, 9:1,7:3, 1:1, 4:6, 3:7, 2:8 and 1:9 H₂SO₄ laid out in a Split plot

design replicated three times, while for gibberellic acid (GA3) the treatment were control, 50, 100, 150, 200 and 250 ppm laid out in a Split plot design replicated three times. The results showed that wet heat treatment for 5 seconds significantly produced the highest germinated *C. campestris* seeds (36.53 %) than the control treatments. Though mechanical scarification was not significant ($P < 0.05$), a rapid increase of germination from day 3 to day 9 was observed, with the highest rate of germination percentage (14 - 22 %) obtained on day 9. Tetraoxosulphate (VI) acid treatment of 4:6 concentrations significantly gave the highest *C. campestris* seeds germination percentage (40.07 %) compared with the rest of the treatments, while the time of soaking the seeds in the tetraoxosulphate (VI) acid showed that soaking the seeds for 1 second significantly gave the highest percentage germination (39.98 %) of *C. campestris* compared with the 3 and 5 seconds soaking treatments. The effect of interaction between the gibberellic acid (GA3) and the soaking time shows 250 ppm GA3 and soaking time of 36 hours had significantly the highest germination percentage (4.50 %) of *C. campestris* seeds compared with the control (0.79 %), 50 ppm (0.99 %) and 200 ppm (1.98 %) treatments. It can be concluded that wet heat for 5 seconds, sulphuric acid of 4:6 concentrations and of 250 ppm GA3 and soaking time of 36 hours treatments has the potentiality to break dormancy of *C. campestris* seeds.

Article ID: ICAS2015Aug_10006

Title: Wheat Yield Response to Water Deficit under Central Pivot Irrigation System using Remote Sensing Techniques

Name: Mohammed El-Shirbeny

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Abstract

Scarcity of rainfall and limited irrigation water resources is the main challenge for agricultural expanding policies and strategies. At the same time, there is a high concern to increase the area of wheat cultivation in order to meet the increasing local consumption. The big challenge is to

increase wheat production using same or less amount of irrigation water. In this trend, the study was carried out to analyze the sensitivity of wheat yield to water deficit using remotely sensed data. The study was carried out in El-Salhia agricultural project. It is located in the eastern part of Nile delta. Normalized Difference Vegetation Index (NDVI) and Land Surface Temperature (LST) were extracted from Landsat7. Water Deficit Index (WDI) uses both Land Surface Temperature (LST) minus air temperature (T_{air}) and vegetation index to estimate the relative water status. yield response factor (ky) is derived from relationship between relative yield decrease and relative evapotranspiration deficit. The relative Evapotranspiration deficit was replaced by WDI. Linear regression was found between Predicted Wheat yield and actual wheat yield with 0.2-6, 0.025, 0.252 and 0.76 as correlation coefficient on 30th of Dec.2012, 15th of Jan.2013, 16th of Feb.2013 and 20th of Mar.2013 respectively. The main objective of this study is using a combination between FAO 33 paper approach and remote sensing techniques to estimate wheat yield response to water.

Article ID: ICAS2015Aug_10001

Title: Application of Enzyme extracted from Aloe Vera plant in Chemical Pretreatment of cotton Knitted Textile to Reduce Pollution Load

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Abstract

Now a days, highly alkaline chemicals like caustic soda, soda ash, silicate, acetic acid and soaping agents are used for scouring to remove the non-cellulosic impurities from the cotton. Use of 30 -40 gm/Kg on weight of the fabric, results in destruction of cotton structure. Intensive rinsing and more acid is needed for reutilization of cotton, which enlarge the volume of effluent. Furthermore, these hazardous chemicals results in increase in COD, BOD and TDS in waste water. These chemicals also attack the cellulose leading to heavy strength loss and weight loss in the fabric. The net result is low quality control and polluted environment with high usage of energy, time, chemical

and water Aloe Vera presents the finest commercial opportunity in various industrial sectors among the various plants. Also, most of the countries gifted with the unique geographical features essential for cultivation of Aloe Vera . Yet, none of the country has not realized and reaped the full potential of such plants in various industrial applications. The reason is simple: lack of the requisite expertise in extraction of various enzyme present in aloe plant Fortunately, the technology is now accessible to make use of enzyme in textile application. In this research an attempt has been made to make use of lipase enzyme extracted from aloe plant in textile chemical pre-treatment process. In the present research work bio scouring of 100 % cotton knitted fabric with lipase

enzyme extracted from Aloe vera plant at various concentration (1%, 2% and 3%) at various temperature (40°C, 60°C and 70°C) for a period of 30 minutes, 60 minutes and 90 minutes). The properties of bio scoured fabrics are compared with these of conventional scoured one. Encouraging results in terms of dye up take, dye levelness, wash fastness, light fastness and rubbing fastness are obtained in case of bio scouring fabric dyed with dark reactive colours. Further, it reduces volume of effluent as well as COD, TDS and pH. It saves a substantial thermal energy 50 % and electrical energy 40%. Bio scouring waste water has 40-50 % less COD and 60 % less TDS as compare to conventional scouring waste water.

Technical Session 3: Environment II

Article ID: CGCC2015Aug_10003

Title: Analysis of Long-Term Tropospheric Ozone Changing Trends and Main Affecting Factors over Southern China based on Satellite Measurements between 1979-2013

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Abstract

Tropospheric ozone is an important kind of pollutant gas and greenhouse gas. In this paper, long-time-series of tropospheric ozone datasets during 1979-2013 are used to investigate the long-term trends of tropospheric ozone in Southern China and quantitatively assess the influences of major impact factors on ozone changes. It is shown from the trend analysis that in the past three decades, tropospheric ozone in Southern China presents a downward trend in winter with the decline rate of 1.79 DU/decade. The volatility downward trends is shown in other three seasons. Seasonal change characteristics of tropospheric ozone in Southern China are presented as following: The maximum occurs in summer at commonly 45 DU, followed by the mean of the spring at around 40 DU, and then is the mean of the autumn at about 35 DU. The winter minimum mean is around 26 DU. In Southern China, the major impact factors of tropospheric ozone

include Solar, Precipitation, ENSO and QBO, of which the influence of solar cycle from trough to peak can generally reach 6-7 DU, the effect of Precipitation is 4-5 DU, and the effect of ENSO is 2-3 DU, while that of QBO is less than 2 DU commonly. Through comparative analysis, it is shown that significant differences exist in solar radiation effect on tropospheric ozone changes among Southern China, Northern China and Qinghai-Tibet Plateau, but it presents similar trends with Equatorial Pacific. In Southern China, the solar radiation has positive effect during April to June and September to November, while negative effects occur in other months.

Article ID: CGCC2015Aug_10006

Title: A Comparison of Two Downscaling Methods for Precipitation in China

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Abstract

In most cases climate change projections from General Circulation Models (GCM) and Regional Climate Models (RCM) cannot be directly applied to climate change impact studies, and downscaling is therefore needed. A large number of statistical downscaling methods exist but

no clear recommendations exist of which methods are more appropriate, depending on the application. This paper compares two different statistical downscaling methods, Presim1 and Presim2, using the Coupled Model Intercomparison Project Phase 5 (CMIP5) datasets. Both methods include two steps but the major difference between them is how the CMIP5 dataset and the station data used. The downscaled precipitation data are validated with observations through China and Jiangxi province from 1976 to 2005. Results show that GCMs cannot be used directly in climate change impact studies. In China, the second method Presim2 which establishes regression model based on the station data has a tendency to overestimate or underestimate the real values. The accuracy of Presim1 is much better than Presim2 based on mean absolute error (MAE), mean relative error (MRE) and root mean square error (RMSE). Presim1 fuses the mode data and station data effectively. Results also show the importance of the meteorological station data in the process of residual modification.

Article ID: CGCC2015Aug_10011

Title: Polar Bears in Antarctica? An Analysis of Treaty Barriers

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Abstract

In a time of massive planetary extinctions, Assisted Colonization posits that certain endangered species may be prime candidates for relocation to hospitable environments to which they have never previously had access. Listed as Threatened under the U.S. Endangered Species Act, a result of the ongoing loss of critical habitat by melting sea ice, Polar Bears have limited options for long term survival in the wild. Our current regime for safeguarding animals facing extinction frequently utilizes zoos and breeding programs to keep alive the genetic diversity of the species until some future time when reintroduction, somewhere, may be attempted. While some species move into new regions and are then deemed invasive, is it possible to reimagine a different, but balanced Antarctic ecosystem which includes Polar Bears? Antarctica and the

Subantarctic Islands therefore represent a second, if imperfect chance, to buy time in the wild for *Ursus maritimus*.

The Assisted Colonization of Polar Bears to Antarctica requires a careful analysis of treaties to understand existing legal barriers to the transport and movement of *Ursus maritimus*. An absence of land-based migration routes prevents Polar Bears from accessing southern polar regions on their own. This lack of access is compounded by current treaties which limit human intervention and assistance. By analyzing existing treaties, I will examine how Polar Bears are limited in movement by humankind's legal barriers. International treaties may be considered codified reflections of anthropocentric values of the best knowledge and understanding of an identified problem at a point in time, as understood through the human lens. Even as human social values and scientific insights evolve, so too must treaties evolve which specify legal frameworks and structures impacting keystone species and related biomes.

Article ID: CGCC2015Aug_10014

Title: The Spatial and Temporal Variation Characteristics of CH₄ and CO₂ Emission Flux under Different Land Use Types in The Yellow River Delta Wetland

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Abstract

The Yellow River Delta Wetland is one of the youngest wetlands, and also the most complete, extensive wetlands in China. The wetland in this delta is ecologically important due to their hydrologic attributes and their roles as ecotones between terrestrial and aquatic ecosystems. In the study, the spatial and temporal variation characteristics of CH₄ and CO₂ emission flux under five kinds of land use types in the wetland were investigated. The results indicated that the greenhouse gas emission flux, especially the CO₂ and CH₄, showed distinctly spatial and temporal variation under different land use types in the wetland. In the spring, the emission flux of CO₂ was higher than that of

CO₂ in the autumn, and appeared negative in HW3 and HW4 in the autumn. CH₄ emission fluxes of HW4 and HW5 were all negative in the spring and autumn, which indicated that the CH₄ emission process was net absorption. Among the five kinds of land use types, the CO₂ emission flux of HW4 discharged the largest emission flux reaching 29.3 mg m⁻² h⁻¹, but the CH₄ emission flux of HW2 discharged the largest emission flux reaching 0.15mg m⁻² h⁻¹. From the estuary to the inland, the emission flux of CO₂ was decreased at first and then appeared increasing trend, but the emission flux of CH₄ was contrary to CO₂.

Article ID: CGCC2015Aug_10016

Title: Overview on Changes of Precipitation Extremes in Romania

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Abstract

Theoretical and observational studies suggest that under warmer climate more intense precipitation events occur even when the total precipitation amount is slightly reduced. The amount of moisture in the atmosphere is governed by the Clausius– Clapeyron (CC) equation (exponential increase by ~7% per 0C). Extreme precipitation events may increase at this rate under global warming and constraint of constant relative humidity, while mean global precipitation increases at a lower rate of 1-3% per 0C. This implies that there will be a shift in the nature of precipitation events towards more intense ones. It has been suggested that the intensity of subdaily (and particularly, hourly or subhourly) extreme rainfall is more sensitive to changes in local atmospheric temperature compared to the intensity of daily-scale rainfall. However, recent studies show that the relationship between extreme rainfall intensity and atmospheric temperature is much more complex than would be suggested by the CC relationship and is mainly dependent on precipitation temporal resolution, region, storm type and whether the analysis is conducted on storm events rather than fixed data. Therefore, regional studies on changes of various characteristics of the extreme rainfall variability

(frequency, intensity, duration) for obtaining a more complete picture on this issue is very important, considering its theoretical and practical importance.

In the present study, an overview of the most recent studies (published on in preparation) on changes of precipitation extremes in Romania at various time scales (daily, hourly, subhourly) is presented. These results have been obtained in the framework of the national research project CLIMHYDEX, “Changes in climate extremes and associated impact in hydrological events in Romania”(http://climhydex.meteoromania.ro). Several indices quantifying various characteristics of precipitation extremes (frequency, intensity, duration) have been considered. On daily scale: time series of the seasonal (DJF, MAM, JJA, SON) frequency of very wet days (daily precipitation amount above the 90th percentile)- Frpp90, longest very wet period- Dmaxpp90, spring and summer frequency of rain showers (Fr-RS); on hourly scale: 90th, 99th and 99.9th percentiles over April-October, as well as time series of the seasonal 90th percentile (May-August)-PP90; subhourly: maximum precipitation intensity (mm/1 minute) in a rainfall event -IMAXPP. These indices have been considered at 9 stations representing various physical-geographic conditions in Romania over a common period with complete data set (1966-2014), except for the hourly 90th, 99th and 99.9th percentiles covering the longer period (1961-2014). The results shows that the IMAX exhibits a coherent and stronger climate signal (significant increase) for all analysed stations compared to the other indices associated to precipitation extremes, which show either no significant change or weaker signal. These results are in agreement with other previous findings for different places with various climate conditions. The frequency of rain showers in Romania exhibits a significant increasing trend in both seasons over almost the entire country that is in agreement with the increase in the frequency of Cumulonimbus clouds. However, not significant changes in the frequency of rainy days have been found. This result, corroborated with those revealing no significant changes in the seasonal amount and the daily extremes in Romania leads to the conclusion that a shift in the nature of precipitation towards more showers (convective rains) happened over the analysed period that is also in agreement with the conclusions related to the IMAX trend. The CCA

(canonical correlation analysis) supplies the optimum large-scale mechanisms responsible for this behaviour and these are related to changes in the regional thermodynamic instability. The extreme hourly rainfall intensities reveal a similar behaviour over the entire country: the 90th percentile shows dependence close to the CC relation for all temperatures; the 99th and 99.9th percentiles exhibit rates close to double the CC rate for temperatures between ~ 100C and ~ 220C and negative scaling rates for higher temperatures. The daily intensities have a less clearly defined scaling behaviour.

Article ID: CGCC2015Aug_10017

Title: Space-Time Variability of The Pedological Drought in Romania

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Abstract

The paper objective is to assess the space-variability of drought in Romania based on the time series analysis of agrometeorological data (soil moisture and phenological data) associated with climatic conditions (air temperature and rainfall). Through an analysis of historical soil conditions and meteorological parameters the evolution of pedological drought was assessed in order to identify the spatial and temporal variability for one agricultural region to another.

Taking into account two crops (winter wheat and maize), there were analysed the time series associated to their main phenological phases at every station with an agrometeorological schedule with complete data over the 1971-2012 interval: three phase for winter wheat (A1-G-field, A2-G-stem elongation and heading, A3-G – flowering) and two phases for maize (A1-P – flowering panicle, A2-P-silk phase). For those data series, there were determined the main characteristics of the temporal variability (the mean regime given by the multiannual mean, the long-term linear trend and the leap in the mean) along with the spatial variability (the main variability modes given by the first two EOF configurations). For the statistical significance of the general trend and of the leap

in the mean, the non-parametric Mann-Kendall and Pettitt tests were used.

Results show a high variability of the mean water supply regime for the both crops in the different phenological phases. It can be noticed that the south, south-eastern and eastern regions are the most affected by extreme and strong pedological drought in Romania, especially during the summer time for maize crop. In this context, the mean regime with severe drought for maize is wide, encompassing the whole of the country's south-east in July, expanding in August over the south of the country also and sparsely in the west. As regards the general trend, there are differences between the two crops and between the different phenological phases. Thus, as regards the winter wheat in the sowing phase (A1-G) a noticeable upward leap is remarkable towards satisfactory or even optimum water supply conditions around 1994 for every region. The connexion with the spatial-temporal variability of other climat extremes will be presented.

Accurate knowledge of climatic resources and dynamics is crucial for understanding of the fine interplay between weather and plant/crop ecosystems. Both temporal and spatial information on soil moisture, and phenology associated with climatic data have to be analyzed in order to draw conclusions on trends variability. Hydric stress due to pedological drought was consistently increasing in the past 30 years, both in duration and intensity, inducing negative effects on crop development and production.

These results have been obtained in the framework of the national research project CLIMHYDEX, "Changes in climate extremes and associated impact in hydrological events in Romania"(<http://climhydex.meteoromania.ro>).

Article ID: CSWCER2015Aug_10016

Title: Mesocosm assessment of Stability Habitat for Halophyte

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Abstract

In this paper, it was constructed the halophyte Mesocosm experimental group which was used as a substrate material which is consist of tidal flat and dredged sediment.

Depending on whether the ingredients of vegetation and substrate material of Mesocosm, it was constructed Mesocosm A (tidal flat sediment + *Salicornia herbecea*), Mesocosm B (only dredged sediment), Mesocosm C (dredged sediment + *Salicornia herbecea*). Monitoring was carried out of seawater quality factors (Chemical Oxygen Demand (COD), Total Nitrogen (T-N), Total Phosphorus (T-P), temperature, salinity), sediment factors (Chemical Oxygen Demand (COD), Total (T-N), Total Phosphorus (T-P) and growth of *Salicornia herbecea* in each Mesocosm. Habitat Stability Index of vegetation was calculating by using the monitoring results. HSI of Mesocosm C was calculated as from 0.87 to 0.95 as compared to the relatively high HSI Mesocosm A, it was evaluated to be able to be used in the restoration of the coastal salt marsh with dredged sediment.

Article ID: CSWCER2015Aug_10006

Title: Impacts of Climate and Land-Use Changes on Soil Erosion Due to Altered Soil Properties

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Abstract

How climate and land-use changes will alter soil properties? How these modified soil properties will influence soil erosion? The aim of this study was to quantify the impacts of climate and land-use changes on soil properties and soil loss. Simulations were performed on catchment scale for three example sites in West, North and East Saxony/Germany at high temporal and spatial resolution.

The study is based on the A1B IPCC-scenario and model outputs of four models: ECHAM4-OPYC3 (general circulation model), WETTREG (statistical downscaling climate model), METVER (hydrological model for calculating daily initial soil moisture) and EROSION 3D as a process-based soil erosion model. Simulations were run for measured and projected single rainstorm events at a temporal resolution of five minutes. Soil loss was simulated for two future periods from 2041 to 2050 and 2091 to 2100 respecting altered soil moisture and reduced content of organic carbon. Expected changes in land use,

soil management due to changed crop rotation, the influences of a shifted harvest and air pressure effects after droughts are taken into account in scenario studies. Outputs were compared to simulated soil loss based on 10 years of measured climate data from 1989 to 2007.

The results of the simulations with EROSION 3D allow to quantify the impact as well of climate as of land-use changes on erosion rates. The impact of the expected increase of precipitation intensities leads to a significant increase of soil loss by 2050 and a partly decrease by 2100 – but the impacts of land use, soil management and changed soil properties on soil loss are mostly higher than the effects of changed precipitation patterns.

Article ID: EEC2015Aug_10004

Title: The Baikal Basin as a Transboundary Ecological and Economic System

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Abstract

This article considers a necessity to assign the Baikal basin as an integrated transboundary ecological-economic system where an incongruity of global ecological and local economic interests is observed. The existing problems and limitations of further development of the Baikal ecological-economic system are singled out.

Article ID: EEC2015Aug_10005

Title: Instruments for Conservation and Sustainable Use of Water Resources in the Baikal Natural Area

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Abstract

The present Paper contains the results of a review of economic instruments for water resources management in the Republic of Buryatia prepared under the OECD project “Improving the use of economic instruments for water

management in the Republic of Buryatia (Lake Baikal basin)" aimed at supporting the policy dialogue on water in Russia, in cooperation with the EU Water Initiative. Based on the analysis, some recommendations were developed for improving the use of instruments for water resources management in the Republic of Buryatia as a part of the Baikal Natural Area.

Article ID: EEC2015Aug_10006

Title: Demonstration of The Nearly Zero Energy

Building Concept

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Abstract

Nearly zero energy buildings (nZEB) will become an obligatory energy efficiency standard in Europe. Following to common guidelines in European legislation the countries investigated technical and economic framework for the preparation of detailed national technical definition of nZEB. Slovenia accepted the nZEB criteria in early 2015.

This paper describes the technical and economic background for identification of economically viable concepts of highly energy efficient apartment building. The highrise demonstration building Eco Silver House revealed that meeting nZEB standards is not an easy task, not so much for technical reasons, but mostly due to the processes, inadequate skills, not fully compliant regulation and insufficient possibilities for interaction between the building and energy networks.

Analysis of cost effectiveness showed that the Eco Silver House fulfills minimal requirements of cost-optimal for apartment building with Net Present Value of 272 EUR/m² and Primary energy use of 79 kWh/m²a in line with the Slovenian national cost optimal study of minimum energy performance requirements from the year 2014. At the time, the requirement of 50% share of renewables in final energy use is not fulfilled, but will be easily reached when EU2020 energy efficiency targets set in the Slovenian Energy Act regarding the RES share in district heating systems and public power grid will be

gradually implemented.

The demonstration project FP7 EE-HIGHRISE confirmed that in spite of the barriers, the nZEB minimum requirements defined on profound theoretical studies, can be met in practice.

Article ID: ICUEH2015Aug_10000

Title: Using GIS and Kriging to Analyze The Spatial Distributions of The Health Risk of Indoor Air Pollution

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Abstract

Kriging is an interpolation technique that is used to estimate a variable at an unmeasured location from observed values at nearer locations. In this study, it is used to analyze the spatial distributions of the health risk of indoor air pollution. The study case is an air-conditioned office building that has 16 floors, located in Taipei, Taiwan. The Kriging method was used in drawing health risk maps on the basis of limited sample points and facilitated investigating the possible source of pollution.

Article ID: EEC2015Aug_10010

Title: A Study of Poverty Problems in Urban Area

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Abstract

The poverty portrait in Indonesia is very terrible. On January 2012, Statistical Central Bureau of Indonesia survey indicates that the number of poor people (the population with monthly expenditure under the poverty line) in Indonesia reached 29,89 million people (12.36%), whereas 10,95 million people live in urban areas in September 2011. It such an irony, because urban area as an economic centre should provide many fieldworks opportunities for the population. Based on that phenomenon, we interested to conduct a study about poverty problem in urban area, especially in Bandung City

as a capital city of West Java province. The method used in this research is descriptive analysis, with survey method to several regencies in Bandung territorial. The data obtained is interview results and some photograph from the area. The result shows us that there are some areas categorized as a poor area, because they cannot fulfill their daily needs, as a consequence of having a lot of family members living in one household.

Article ID: EEC2015Aug_10011

Title: The Role of Good University Governance Implementation for Ethical Behavior of Accounting Students

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Abstract

Since the professional accountants are increasingly facing complex challenges in both business and professional environments as a result of the events of the last decade, pressures for more ethical behavior are growing in the business environment (Onyebuchi, 2011). Ethical behavior should be introduced to future professional accountants at their young age, which is when they are still at university. Ethical behavior is considered important because with a good ethical behavior, as a future accountant, they can make a positive impact to their business environment. The responsibility to introduce ethical behavior lies at the hand of everyone involved in accounting education. And we can see the involvement of people who responsible for knowledge sharing from university governance. A university that implements good university governance should have students who have a good ethical behavior. This research will describe the role of good university governance to student's ethical behavior in accounting department. The result suggested that with an active involvement of member of the foundation, member of faculty and a sample of good behavior of the lecturer will encourage accounting student to have a better ethical behavior which will lead to a better business environment.

Article ID: EEC2015Aug_10012

Title: The Role of University Social Responsibility in Implementing Corporate Social Responsibility

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Abstract

Social responsibility to the community and environment is not belong to the government and companies only, but more than that, all parties should be involved, including universities. Pramono Sari and hadiprajitno (2013) stated that University Social Responsibility (USR) is a form of academicians' ethical behavior in order to help surrounding community. In line with that statement, Maranatha Christian University (MCU) conducted several community services using Micro, Medium, and Small Enterprises (MSMEs) mentoring program for business feasibility study report making. This report is needed by MSMEs in order to obtain financial loan supports from big companies. Indonesia has a policy that every company has to allocate 5% of their income for Corporate Social Responsibility (CSR) funding. Those companies will put their trust more on the loan to MSMEs that can describe their capital need in detail through business feasibility study. But, these things can be implemented only when MSMEs get support from universities in making the business feasibility study. This is the area where Universities can take parts. Using CSR, their role to implementing CSR in Indonesia can be very important. In this research, using descriptive analysis method we will describe business feasibility study which have done by MCU to MSMEs.

Article ID: EEC2015Aug_10013

Title: Waste Cooperative: A Solution for Environmental Pollution Problem

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Abstract

Environment pollution always becomes a complicated problem for a developing country like Indonesia. High size

of population density, poverty level, unemployment level and low educational level thrust this problem to become a national issue. This problem needs to be analyzed comprehensively with the involvement of many parties, such as government, business, and group of people who care about environment One of the solutions is the making

of Waste Cooperative. The existence of cooperative, as an Indonesian Economic Pillar, has been acknowledged nationally. This paper tries to explain the importance of waste cooperative in overcoming environment pollution, and how the cooperative encourage people through waste collection program which will be financially appreciated.

Technical Session 4: Agriculture II

Article ID: PFS2015Aug_10001

Title: Residue of Thiram in Oil Palm Nursery under Tropical Conditions: A Fate Study

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Abstract

Dithiocarbamate fungicides thiram (tetramethyl-thiuramdisulfide) is intensively used in oil palm nurseries for seeds protection and oil palm seedlings from a variety of fungal diseases. The dissipation and residual level of thiram were investigated under tropical condition at RISDA Estate, Sungkai, Perak. The experiment was conducted with three treatment conditions namely; manufacturer's recommended dosage (25.6 g a.i./plot), double the manufacturer's recommended dosage (51.2 g a.i./plot) and control (spraying with water). Soil, water and oil palm leaf were collected at the following intervals; -1 (before treatment), 0 (day of treatment), 1, 3, 5, 7, 14, 21, 30 and 60 days after treatment. The quantification of thiram residue was performed using high performance liquid chromatography with diode array detector (HPLC-DAD). Thiram residues were detected in the soil up to 30 cm depth in the range of 0.12 mg/kg to 27.04 mg/kg. Residue levels of thiram in water and oil palm leaf were found in the range of <0.1- 2.52 µg/L to <0.1-1.28 mg/kg, respectively. Results showed that the dissipation of thiram was rapid under tropical climatic conditions. Therefore, thiram is safe to use as foliar treatment in oil palm nursery due to its short presence in soil and environment.

Article ID: PFS2015Aug_10002

Title: Determination of Glufosinate Ammonium (GLUF) in Crude Palm Oil (CPO): High Performance Liquid Chromatography with Fluorescence Detector (HPLC-FLD)

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Abstract

A simple and quick method for determination of glufosinate ammonium (GLUF) in crude palm oil (CPO) using HPLC-FLD was developed and validated. Liquid-liquid extraction (LLE) was carried out using a dichloromethane-water mixture (2:1) to extract GLUF in CPO. GLUF was then derivatized with 9-fluorenylmethylchloroformate (FMOC-Cl) and separated using a C18 reverse phase column with potassium dihydrogen phosphate (50mM, pH 2.5) and acetonitrile as the mobile phase. The calibration curve for GLUF was constructed and the correlation coefficients (r^2) obtained was 0.9994. The recoveries of GLUF spiked in crude palm oil were performed at five fortification levels (0.05-1.0mg/kg) to determine the efficiency of the extraction procedure. The average recoveries obtained for GLUF ranged from 85% to 112% with relative standard deviations (RSD) of less than 3%. The limit of detection (LOD) and limit of quantification (LOQ) for GLUF were found to be 0.03 and 0.1 mg/kg, respectively. No clean-up process was required because there were no interfering peaks in the chromatograms. The proposed method provided good sensitivity for the determination of GLUF in crude palm oil.

Article ID: PFS2015Aug_10006

Title: Study on the Germination and Growth of the Wheat Seeds Coated with a special functional additives

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Abstract

The wheat seed coating agent can play a role in preventing certain diseases and insect pests. But at the time, seedling emergence and growth of wheat were inhibited by the wheat seed coating agents in varying degrees. This study was conducted to develop a special functional additives of seed coating agents by using the “Naian Dalishi”, chitosan oligosaccharide, and other additives, and to determine its function efficacy against seed coating agents and side effects by measuring physiological and biochemical and biological characteristics in wheat. The results indicated that both the mixture of wheat special functional additives and Shuangbanwang seed coating agent are able to accelerate the degradation of starch, promote the generation of total soluble sugars. Thereby promoting seed germination, enhance germination emerge 32.5%, dry weight per plant 1.34g, activity of peroxidase 7.6U, root vigor 23.2mg/g, chlorophyll content 0.28mg/g, as compared with the corn seed coating agent. These results highlight the potential of the special functional additives of seed coating agents to be used for the prevention and control of side effects in wheat.

Article ID: ICAH2015Aug_10006

Title: Cold pretreatment improves in vitro gynogenesis of sugar beet (*Beta vulgaris*)

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Abstract

Double haploid production, which is one of the most effective and successful methods to get complete homozygous breeding lines, can be improved by stress

factors like cold, heat and starvation. These stresses ease the transition from gametophytic to sporophytic phase. The present report elucidates the role of cold pretreatment on gynogenesis of sugar beet. Unopened flower buds of sugar beet were kept at 4 °C for 7 or 14 days in dark and the control did not receive cold pretreatment. Isolated ovules from 5 different genotypes were cultured on hormone-free MS or basal medium supplemented with 1 or 2 mg/l BAP. Developed embryos from the cultured ovules were then transferred to a medium containing 0.5 mg/l BAP. The exposure of unopened flower buds to cold significantly improved gynogenic embryo formation from cultured ovules at both BAP concentrations although 2 mg/l BAP as compared to 1 mg/l resulted in greater number of embryos. Taking the means of all the cultured genotypes into account, the cold pretreatment increased the number of haploid embryos from a mean of 6.65% to 9.42% at 1 and 2 mg/l BAP, respectively. The highest embryo yield was obtained from the genotype SG3 (37.7%). After achieving somatic embryogenesis, the ploidy level of plantlets was determined with flow cytometry.

Article ID: ICAH2015Aug_10002

Title: Novel Tools for The Control of Horticultural Pests: Pesticide Treated Nets

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Abstract

Long-lasting insecticide-treated nets, widely used for the control of the mosquitoes transmitting malaria, are novel pesticide tools in agriculture that combines physical and chemical tactics. Depending on the size and geometry of the hole, they can be effective barriers against pests (e.g. whiteflies, aphids, thrips, mites, lepidopterans, etc.) and can contribute to the reduction of the spread of insect-transmitted virus diseases. Moreover, based in results of our group, they are compatible with parasitoids (Dáder et al., 2014). Pest Manag Sci DOI 10.1002/ps.3942). Lab and field studies were set up in order to test the compatibility of a non-commercial yellow bifenthrin treated net (3.6 g/kg of net) with the phytoseiid

predatory mite *Amblyseius swirskii*, very much appreciated in Southeastern Spain where more than 35.000ha of protected horticultural crops are concentrated. The experimental net was provided by Ginegar Plastic Products Ltd-Intelligent Insect Control SAS. In the lab, firstly, the residual contact activity was tested on adults using 12 cm square glass dismountable cages and results showed that the treated net was harmful to the mite in terms of mortality increase; secondly, a choice test using Y-shaped tubes and *Carpoglyphus lactis* glued in cards as food traps, showed that mites were equally distributed supporting the idea that neither the color nor the possible pesticide smell disturbed the natural enemy (NE) and no effect on mortality was detected at 72h after having crossed the net. Thirdly, a field experiment was set up in 2 identical commercial cucumber greenhouses (4.000 m²) at El Ejido (Almer á, Spain) with plastic film in the roof and the control or the treated net on the sides. Once the pests were settled (*Bemisia tabaci*, *Frankliniella occidentalis*), the NE was released at a rate of 100 *A. swirskii*/m² by hanging commercial sachets on the middle leaves of the plants (50 cm high). The monitoring of the pests and natural enemy distribution at distances of 0-4 and 12 m from the lateral nets for 12 weeks showed a lack of interaction distance-treatment; a significantly higher pest infestation under the control net and consequently a higher number of phytoseiid mites probably attracted by the higher food concentration. Furthermore, it was observed a significant descending number of pests with increased distance to the net in any case (linear mixed-effects models (LMM); Statgraphics® Plus, version 5.0). In conclusion, under field conditions, the bifenthrin treated net was compatible with *A. swirskii* and the pest infestation levels were lower than in the control. The pesticide content decreased to 1.939 g/kg after the 4 months of exposure to the intense sunlight of South Spain, making clear the need of incorporating sun protectors during the making of the yards in the factory.

Article ID: ICAH2015Aug_10014

Title: Antioxidant traits and Anthocyanin content of Qare-Qat (*Vaccinium arctostaphylos*) and Tomato fruits

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Abstract

Anthocyanins are a group of flavonoids that their effect on human health is rarely taken into consideration, whereas they have high antioxidant capacity. In this trial, anthocyanins content, total polyphenols, antioxidant properties and activity of three important antioxidants enzymes including: Catalase, Superoxide dismutase (SOD) and Superoxidase was studied in tomato and Qare-Qat fruits. Results showed that antioxidant capacity of tomato fruit (based on DPPH) significantly is superior to Qare-Qat fruit. But, polyphenols content and peroxidase activity in fruits of Qare-Qat have relative advantage as well as SOD activity and anthocyanin content in Qare-Qat fruits is considerable superior to tomato fruits.

Article ID: ICAH2015Aug_10015

Title: Growth Promotion and Induction of Drought Stress Tolerance in Maize (*Zea mays* L.) by Fluorescent pseudomonads

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Abstract

The present research was carried out to study effect of four fluorescent pseudomonads strains on some physiological traits of maize (SC704) under water deficit in two years. Experimental design was split plot based on randomized complete blocks (RCBD) with three replicates. Water deficit was applied by three different irrigation intervals (irrigation after 40%(T1), 60%(T2) and 75%(T3) of available soil moisture depletion) which were allocated to main plots. Four pseudomonas strains and a non-inoculated control treatment allocated to subplots. Results showed that the highest leaf relative water content (RWC) was obtained with T1 but pseudomonas strains not significant effect. Cell membrane stability (CMS) and starch content decreased with increasing water deficit and increased by using pseudomonas strains. Chlorophyll a and a/b significantly increased by inoculation with pseudomonas strains in comparison to the control in all

water deficit levels. Proline, ABA, chlorophyll b and total soluble sugar content increased with increasing Water deficit. However, inoculated plants had increased chlorophyll b, proline, abscisic acid and total soluble sugar content. The highest total soluble sugar content, ABA, proline and chlorophyll b was obtained with S4 and highest starch content and chlorophyll a was observed in S153 and S169, respectively.

Article ID: ICAH2015Aug_10016

Title: Agronomic Performance of High Value Crops in High Tunnel in Wyoming, USA

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Abstract

There is increasing interest in the use of high tunnels for season extension and crop production of high value crops in Wyoming and neighboring states in USA. Varietal response and sustainable management are critical in high tunnel production systems. The goal of the study was to find out varietal response and develop sustainable management strategies for optimal high tunnel crop production. The experiment was conducted in a high tunnel at the University of Wyoming James C. Hageman Sustainable Agriculture Research and Extension Center in Lingle, Wyoming, USA. The study was laid out in a randomized block design with three replications. Eighteen raised seed beds were installed with local soil mixtures as growth media. Drip irrigation system with timer was also installed to each seed bed to supply water as needed basis. Temperature was recorded regularly with the installed thermometer in the high tunnel. Soil test showed enough nutrient concentrations in the soil mixture media, so no fertilizer was applied. Two vegetable species (pepper and tomato) and two varieties from each of the species were used in the study. Varieties included 'California Wonder' and 'Keystone Giant' for pepper and 'Betterboy' and 'Bushmaster' for tomato. Two plants per variety were transplanted into the seed beds on May 9, 2013. Vegetative growth, number of fruits, and fruit quality as shape and size were monitored throughout the growing season. Fruit harvesting started in July, 2013 with two to three harvests

per month and continued until October, 2013. Total yield was calculated by summing all monthly harvest yields during the growing season. There was no effect of seed bed ($P=0.8589$), plant ($P=0.1943$), variety ($P=0.7858$), and species \times variety interaction ($P=0.1275$) on total fruit yield per plant. However, there was significant effect ($P<0.0001$) of species on total fruit yields. Average fruit yield for pepper was 2.2 kg per plant (1.9 kg per plant for California Wonder; 2.4 kg per plant for Keystone Giant) while the average fruit yield for tomato was 9.7 kg per plant (10 kg per plant for Betterboy; 9.3 kg per plant for Bushmaster). In 2014, pepper (Keystone Giant and 'Socraties X3R Hybrid') and tomato (Bet-terboy and 'Trust') were planted on May 9, 2014. Fruit harvesting started in July, 2014 with two to four harvests per month and continued until October, 2014. Average fruit yield for pepper was 1.0 kg per plant (0.9 kg per plant for Keystone Giant; 1.1 kg per plant for Socraties X3R Hybrid) while the average fruit yield for tomato was 9.1 kg per plant (9.2 kg per plant for Betterboy; 9.0 kg per plant for Trust). In addition to tomato and pepper, in the spring of 2014, radish, spinach, and carrot were planted into the beds on March 20, 2014. Harvesting of radish started on April 28 and completed on May 28. A total of 72 radishes per square meter were harvested at a weight of 0.9 kg per square meter. The spinach was harvested once per week starting May 1 for five weeks. Total yield of spinach was 1.7 kg per square meter. The carrots were harvested over a period of three weeks. The first harvest was on June 24 with a total yield of 1.1 kg per square meter. A week later on June 30, carrot yield was 1.5 kg per square meter. The last carrot harvest on July 8 yielded 3.1 kg per square meter. The total yield of carrots from three harvests were 5.7 kg per square meter. Overall, vegetable yield and fruit yield per plant, especially for tomato, was significant in high tunnel. It is anticipated that the growth, yield, and total production of high value crops can be increased in areas of shorter growing season using high tunnel production systems.

Article ID: ICAH2015Aug_10018

Title: Expression of genes affecting skin coloration and sugar accumulation in apple fruits at ripening stages in high temperatures

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Abstract

High temperature is one of the most important environmental factors that affect the successful cultivation of apple (*Malus domestica* Borkh). The expression of genes related with anthocyanin synthesis and sugar accumulation by high temperature treatment was investigated in the fruits of 'Fuji' apple at different developmental stages in different temperature conditions through real-time PCR. In the initial ripening stages in fruits, there was high expression of genes associated with fruit ripening, flavonoid compound accumulation, and coloration in high temperatures. Expression of phenylalanine ammonia-lyase, chalcone synthase, flavone 3-hydrogenase, and malate dehydrogenase genes increased gradually in initial ripening stages, while sharply reduced at 24 hr after treatment. In addition, no significant difference in the expression of all temperature treatments in late ripening stages. In the further work, investigation of expression levels of various genes could be conducted in the level of transcriptomes from fruits at the early stages to get meaningful information of ripening metabolism in apple in high temperatures.

Article ID: NFS2015Aug_10002

Title: Relationship between antioxidant intake from foods (DAI) and antioxidants in plasma in Krakow inhabitants

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Abstract

Disturbances in oxidative/antioxidative balance and excessive formation of free radicals may lead to development of chronic diseases, especially cancer and heart diseases.

The current literature data are suggesting that diet enriched with multicomponent antioxidant foods may significantly increase total antioxidants in plasma and decrease the oxidative stress. In nutritional epidemiology, FFQ-based TAC (Total antioxidant capacity) values may

be used to assess antioxidant intake from food. It is usually reported as Dietary Antioxidant Index (DAI).

The aim of the study was to estimate the daily intake of antioxidants among the inhabitants of Krakow, Poland on the basis of DAI and evaluate relationship between DAI and the level of antioxidants in plasma: TAC as FRAP (Ferric Reducing Ability of Plasma) and MDA (malondialdehyde)

Material and methods

The study group consisted of 70 (37 women and 33 men) healthy inhabitants of Krakow, aged 46.4±13.7 years, they did not smoke. Dietary antioxidant index was investigated on the basis of food frequency questionnaire (FFQ). In the FFQ 145 food items were classified into groups such as fruit and dried fruits, vegetables and vegetable oils, sweets, grains and cereal-based products, mixed dishes, fresh herbs and spices and beverages. In order to calculate DAI for each participant, previously published databases from United States and Italy, containing the most commonly consumed foods were used. Participants reported how often they ate each food in the past month. The total antioxidant status of food intake was measured using the method by Benzi I. This method exploits the ability of the sample to reduce ferric ions to ferrous ions (FRAP). In plasma samples TAC as FRAP and malondialdehyde (MDA) concentration as marker of lipids peroxidation were measured. Blood samples were collected during the routinely done procedures after 12-hour overnight fast. Study protocol was approved by the Bioethical Committee of Medical College of Jagiellonian University

Results: The mean value of DAI of all examined persons was 44.22±25.5 mMol/l: fruits had the biggest contribution (32.0%), next grains and cereal-based products (23.5%) and beverages-especially coffee (20.6%). The contribution of the rest examined food products (vegetables, fresh herbs and spices, fish and sea-food and sweets) was low (23.9%). The mean value of FRAP in plasma was 1.14±0.43 mMol/l and MDA was 9.66±11.17 nMol/ml. DAI was positively correlated with FRAP plasma ($r=0.42$; $p=0.0003$) and negatively correlated with MDA ($r=-0.45$; $p=0.00009$).

Conclusions. The obtained results confirmed the hypothesis that daily intake of antioxidants may increase antioxidants defense mechanism in plasma therefore an

anti-oxidant diet with natural bioactive components should become an interesting solution for degenerative disorders in which oxidative stress is increased.

Article ID: NFS2015Aug_10003

Title: Poland: Water Safety in Food Safety Context

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Abstract

Water is a crucial food and food products component and often an important source of mineral elements. In recent years water consumption among Polish population is growing. Purification and management of water supplies are definitely one of the most important processes in developed countries. Safety of drinking water was always crucial because health depends on drinking water quality. Risk connected with contaminated water is connected with: 1) the transmission of diseases resulting from microbial contamination, 2) the emergence of diseases associated with years of consumption of water contaminated with chemicals. Tap water, bottled water and water used in food production - must meet precise requirements to ensure that consumers are fully secured. To achieve permanent guarantee of high quality of drinking water not only quality is important but also usage of risk management systems to minimize potential hazards and risks. It is important for the food industry, in cooperation with scientific experts and NGOs, to develop a framework to ensure the safety of consumers. Recommendations regarding water use should be based primarily on an assessment of its suitability for use at a given stage of food production. The use of the continuity of the food chain concept, often referred to as the: "farm to table", or the supply of water "from catchment to tap", requires an integrated thinking and cooperation of all stakeholders involved in the process. According to World Health Organization guidelines risk management of water supplies should be implemented (WSP – Water Safety Plans). In Poland HACCP system has been introduced for ten years, and now is obligatory and our efforts are focusing on implementation of WSP programme.

Article ID: NFS2015Aug_10004

Title: The difference between glucose and fructose on the generation of volatile compounds with glutamic acid by Maillard reaction

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Abstract

Maillard reaction plays an important role in food flavor. There are many factors to affect the volatile flavor, one of which is different of the kinds of sugars or amino acids. Wheat flour contains a variety of amino acids, especially abundant glutamic acid. So the Maillard reaction between sugars and glutamic acid was investigated. Glucose and fructose were selected to research the difference of volatile compounds under similar reaction condition. The optimal reaction conditions are as follows, the ratio of sugar and amino acid was 1:1, and the reaction time was 6h at 100°C in water solution, whose pH was adjusted at 9. The products of reaction were analyzed by SPME-GC/MS. According to the contrast of the volatile compounds yielded from fructose and glucose, the results indicated that Maillard reaction of fructose between glutamic acid can produce more volatile compounds because of the different sugar structures. Fructose produced more volatile compounds, which are main pyridines, pyrroles, furanones and pyranones. Hence, the flavors originated from glucose or fructose reacted with glutamic acid by Maillard reaction have the distinct effect on foods.

Article ID: NFS2015Aug_10007

Title: Application of Gfpuv Labeled Cronobacter Sakazakii for Evaluation its Survival during Cornstarch Processing

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Abstract

Cronobacter sakazakii is an emerging pathogen that can cause diseases for several infant groups. These bacteria

contaminated in foods, clinical utensils, and environments. In Indonesia, *C. sakazakii* has been isolated from powdered infant formulas, weaning foods, and other dried foods such as cornstach. The objective of this research is to trace survival of *C. sakazakii* during cornstach production step using its mutant. Mutant was constructed by ins & euml;rtion of Green Fluorescent Protein plasmid inside to the bacterial cell that appeared green fluorescent colonies under UV observation. The presence of *C. sakazakii* during processing was conducted by artificial contamination. This research consists of three steps, i.e determination of the suitable enumeration method of *C. sakazakii*'s mutant, cornstach production from yellow corn, and survival analysis of *C. sakazakii* during endosperm soaking and cornstach drying. The suitable enumeration method was surface plating method on TSA-ampicillin medium completely combined with UV light observation due to ampicillin resistance of yeasts, molds and some lactic strain. The cornstarch produced in laboratory has the same characteristics with commercial cornstach in parameters of moisture content, density, and starch granule structure. The yield of cornstach final product was 48.90% (whole kernel-based). Survival analysis during cornstach production showed that *C. sakazakii* cannot survive in soaking and drying step.

Article ID: NFS2015Aug_10013

Title: Palm Oil Microencapsulation by Coacervation,

Technical Session 5: Physics I

Article ID: CCM2015Aug_10000

Title: The element-free improved moving least-squares Ritz method for some problems

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Abstract

An element-free computational framework based on the improved moving least-squares Ritz (IMLS-Ritz) method is developed for solving mechanical and mathematical problems. Employing the IMLS approximation for the

Thin Layer Drying, and Silica Dioxide Absorption Technique

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Abstract

Indonesia is the largest palm oil producer in the world. The content of β -carotene in palm oil, which can act as pro-vitamin A, is relatively high, so it has great potential for overcoming cases of vitamin A deficiency. By microencapsulation process of palm oil, β -carotene content in palm oil will be more stable and have a longer shelf life. There are three methods of microencapsulation used in this study, namely coacervation, thin-layer drying, and SiO₂ absorption technique, which theoretically are suitable for encapsulating β -carotene in palm oil. The aim of this research is to compare and find the most suitable method of microencapsulation process to obtain the highest β -carotene content and retention. Results showed that those three methods significantly different in affecting water absorption, solubility in water, yield, microencapsulation efficiency, β -carotene content, and retention of microencapsulated palm oil. The microencapsulated palm oil made from thin layer drying method had the highest β -carotene content at 200.16 g/g with β -carotene retention of 68.89%. It also had low water absorption and high water solubility, so it can be applied as a powder premix in food as vitamin A supplement.

field variables, discretized governing equations of the problems are derived via the Ritz procedure. Using the IMLS approximation, an orthogonal function system with a weight function is used to construct the displacement fields. Thus the resulting algebraic equation system can be solved without a matrix inversion. Convergence studies are carried out to examine the numerical stability of the IMLS-Ritz method by considering the influences of support sizes, number of nodes and time steps involved. A few example problems are selected such as the one-dimensional nonlinear Klein-Gordon equation, two dimensional elastodynamic problem, and three

dimensional wave equation. The applicability of the method is demonstrated through solving these problems numerically. Its accuracy is validated by comparing the presented results with the analytical solutions.

Article ID: CCM2015Aug_10001

Title: Mechanical Buckling of Epoxy/Clay Nanocomposite Engesser-Timoshenko Beams

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Abstract

This paper studies mechanical buckling of Epoxy/Clay Nanocomposite beams subjected to axial compressive load that is simply supported at both ends. The displacement field of beam is assumed based on Engesser-Timoshenko beam theory. Applying the Hamilton's principle, the equilibrium equation is established. The influences of dimensionless geometrical parameter and nano particles volume fractions on the critical buckling load of beam are presented. To investigate the accuracy of the present analysis, a compression study is carried out with the experimental data.

Article ID: CCM2015Aug_10002

Title: Free Vibration of Epoxy/Clay Nanocomposite Beams Based On the First Order Shear Deformation Theory

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Abstract

This paper studies free vibration of simply supported Epoxy/Clay Nanocomposite beams based on the first order shear deformation theory. The Young's modulus of beam is assumed based on Mori-Tanaka mean stress theory. The governing equation is established. Resulting equation is solved using the Euler's Equation. The effects of the of

dimensionless geometrical parameter and nano particles volume fractions on the vibration frequency are presented. To investigate the accuracy of the present analysis, a compression study is carried out with the experimental data.

Article ID: CCM2015Aug_10004

Title: Simulation of the Dynamics of an Inextensible Kirchhoff Rod Based on Discrete Variational

Integrator

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Abstract

We discuss a novel scheme to study the dynamics of an inextensible Kirchhoff rod that is subjected to end loads and moments, based on the notion of a Discrete Variational Integrator (Stern, A. et al. 2006. Discrete Geometric Mechanics for Variational Time Integrators). Such an approach is guaranteed to conserve momentum and energy over very large time scales. Furthermore, unlike conventional director based approaches, the method used here utilizes a discrete bishop frame and a discrete measure of rod curvature to postulate the Lagrangian of the system directly (Bergou, M. et al. 2008. Discrete Elastic Rods. ACM Trans. Graph. 27, 3). This results in a system of only four equations with no constraints (other than inextensibility). It is possible to achieve this by eliminating the rotational inertia of the rod, since the inextensibility constraint is satisfied by using a Lagrange multiplier approach and the value of the Lagrange Multiplier is computed at every time step with a Picard iteration technique. In order to simulate the interaction of the rod with the surrounding medium, a new collision avoidance scheme based on continuous penalty force method (Tang et al. 2012. Continuous Penalty Forces. ACM Trans. Graph. 31, 4.) will also be discussed and its advantages will be illustrated. Finally several examples of the bend-twist interaction (in the three dimensional case) as well as collision avoidance with external objects (in the two dimensional case) will be illustrated.

Article ID: CCM2015Aug_10005

Title: Unsteady flows characteristics in a channel with oblique plates

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Abstract

Unsteady flows in a channel with oblique plates have been numerically investigated. The oblique plates as disturbance promoters are installed at the upper wall. Unsteady characteristics are examined for $Re=350$ and the plate angles of $\alpha = 60^\circ \sim 120^\circ$. The flowfields represent three-dimensional features variously as the plate angle varies. From frequency analysis, it is noted that the disturbed flow by the oblique plates has peculiar unsteady modes. As the flow is more un-stable, multiple frequencies are appeared.

Article ID: CCM2015Aug_10006

Title: DEM simulations of granular soils under un-drained triaxial compression and plane strain

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Abstract

The paper presents 3D DEM simulation results of undrained tests for loose assemblies with varied porosities under both triaxial compression and plane strain conditions, using a periodic cell. The undrained tests were modelled by deforming the samples under constant volume conditions, which corresponds to saturated soil samples. The undrained stress paths are shown to be qualitatively similar to physical experimental results. The triggering of liquefaction and temporary liquefaction is identified by a microscopic parameter with redundancy factor (RF) equal to unity, which defines the transition from 'solid-like' to 'liquid-like' behaviour. The undrained behaviour of granular soils is found to be mainly governed by the evolution of redundancy factor, and a reversal of

deviatoric stress in stress path (temporary liquefaction) is found to be due to temporary loss of contacts forming a structural mechanism in the system where RF is smaller than unity during the evolution.

Article ID: CCM2015Aug_10010

Title: Generalized Dynamic Modeling of Iron-Gallium Alloy (Galfenol) for Transducers

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Abstract

Developments and applications of magnetostrictive longitudinal transducers using iron-gallium alloy (Galfenol) have been investigated in the last decade because of Galfenol's outstanding mechanical properties. For the further development of these transducers, a generalized multi-physics and macroscopic-based model is significantly required although several phenomenological and physical models were established. In this research, using the energy approach, a generalized dynamic model is derived for Galfenol based on the mechanical strain theory and the Jiles-Atherton model. Experiments have been conducted to measure the relationship between the strain and the magnetic field. Using experimental data, unknown parameters in the model have been identified by a developed optimization algorithm. Results show that the novel dynamic model with identified parameters is capable of describing the performance of the Galfenol rod. Simulation and experiment dynamic responses of Galfenol rods are derived. The simulation and the experiment both agree that the magnitude of the strain output decreases with the increase of the excitation frequency.

Article ID: CCM2015Aug_10011

Title: Development and Application of Two-Dimensional Numerical Model on Shallow Water Flows Using Finite Volume Method

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Abstract

This present study develops a 2-D numerical scheme to simulate the velocity and depth on the actual terrain by using shallow water equations. The computational approach uses the HLL scheme as a basic building block, treats the bottom slope by lateralizing the momentum flux, then refines the scheme using the Strang splitting to deal with the frictional source term. Besides, a decoupled algorithm is also adopted to compute the aggradation and degradation of bed-level elevation by using the Manning-Strickler formula and Exner's relationship. The main purpose is to set up the window interface of 2-D numerical model and increase the realization of engineers on these characteristics of hydraulic treatment and maintenance.

Article ID: CCM2015Aug_10012

Title: CFD Numerical Simulation of Hydrodynamics in a Rotor-stator Reactor for Biodiesel Synthesis

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Abstract

In this paper a rotor-stator spinning disk reactor for intensified biodiesel synthesis is described and numerically simulated. The reactor consists of two flat disks, located coaxially and parallel to each other with a gap ranging from 0.1mm to 0.2mm between the disks. The upper disk is located on a rotating shaft while the lower disk is stationary. The feed liquids, triglycerides (TG) and methanol are introduced coaxially along the center line of rotating disk and stationary disk, respectively. Fluid hydrodynamics in the reactor for synthesis of biodiesel from TG and methanol in the presence of a sodium hydroxide catalyst are simulated, using convection-diffusion-reaction species transport model by the CFD software ANSYS©Fluent v. 13.0. The effects of upper disk's spinning speed and gap size are evaluated.

Article ID: CCM2015Aug_10014

Title: Using Finite Element Analysis and Experimental Analysis on Vibration of a Piezoelectric Micro Pump

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Abstract

Due to the rise of biological and MEMS technology in recent years, some micro flow system components have been paid attentions to developed by many investigators. The importance of micro-pumps manufactured is higher than the other part of micro flow system since it is the power source of the entire micro-flow system and responsible for driving working fluid in the microfluidic system. In actual operation, the instability and bad dynamic characteristics of the micro-pump will cause larger fluid flow mobility error, such as transport behavior and response procedures failure, etc., and even damage the microfluidic system. Therefore, to investigate the stability and dynamic characteristics of a micro pump is necessary. The Finite element analysis (FEA), ANSYS Workbench, is employed to analyze the dynamic characteristics of this micro pump, and experiment is also considered in this study.

Article ID: CCM2015Aug_10013

Title: A Central Numerical Scheme to 1D Green-Naghdi Wave Equations

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Abstract

A numerical scheme based on hybrid central finite-volume and finite-difference method is presented to model Green-Naghdi water wave equations. The governing equations are reformulated into the conservative form, and the convective flux is estimated using a Godunov-type finite volume method while the remaining terms are discretized using finite difference method. To enhance the robustness of the model, a central-upwind flux evaluation and a well-balanced non-negative water depth construction are incorporated. Numerical tests

demonstrate that present model has the advantages of

stability preserving and numerical efficiency.

Technical Session 2: Physics II

Article ID: HE2015Aug_10001

Title: Research on the Application in Glazed Tile Heating of the Low-carbon Catalytic Combustion Furnace of Natural Gas

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Abstract

This experiment aims to summarize the regular pattern of low-carbon catalytic combustion furnace of natural gas used in glazed tile heating. The tiles used for decorating which are heated by catalytic combustion furnace are more fine and glossy than the conventional ones, moreover, pollutant emission produced in productive process is much less than before. This conclusion may provide a new way to glazed tile heating industry, at the same time, provide a general method of using the catalytic combustion furnace.

Article ID: HE2015Aug_10002

Title: Performance of Heat Pipe Utilized for Atmospheric Air Heating

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Abstract

The objective of the present experimental work is to investigate the performance of a wrapped screen heat pipe for atmospheric air heating to compare with the limits of this pipe. The experiment was conducted using copper pipe material and acetone as working fluid at different vapor temperatures. The testing also consists of a heater, a blower for heat removal (condenser), temperature measuring device, a vapor temperature probe, acetone

charging system, and a vacuum pump. The copper outside diameter of the pipe is 0.022 m, with a total length of 0.6 m. The results showed that the pipe wall temperature (T_w) for a wrapped screen heat pipe has a rapid increase and takes 50 min to reach steady state at ($Q = 63$ W). The vapour temperature of working fluid increases as the heat load increases at constant air velocity. It was also been found that the range of vapour temperature decreases as the filling ratio increases that means the increasing of the filling ratio results the decrease of the maximum vapour temperature and the variation in the vapour temperature. The best recorded filling ratio is 0.6 which has the lowest vapour temperature at highest heat load. The maximum heat transport limit for this pipe is 80 W and the maximum temperature difference for air is 5 °C.

Article ID: HE2015Aug_10004

Title: Development of Hybrid Device for Photovoltaic Power Generation and Heating

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Abstract

The purpose of this research was to increase the generating efficiency of concentrated photovoltaic (CPV) technology within a restricted area using solar tracking and heat pipes. We propose a system with the ability to extract thermal energy from CPV devices using a thermal absorber containing heat pipes and cooling water. This energy can then be used for a heating system or hot-water supply. We performed a parametric analysis of the velocity and entrance location of the cooling water in the thermal absorber with respect to the operating temperature of the

CPV devices and the outlet temperature of the cooling water in the thermal absorber. We also examined the effect of the lens concentration ratio. Simulated and experimental results for the thermal absorber containing heat pipes were in good agreement.

Given that the results of an economic feasibility study were positive in terms of payback time, the proposed system is practical and realistic.

Article ID: HE2015Aug_10008

Title: Transient natural convection flows of cold water in a vertical channel

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Abstract

The two-dimensional differential transform method (DTM) is applied to analyse the transient natural convection flow of cold water in a vertical channel. The cold water gives rise to a density variation with temperature which may not be linearized. The vertical channel is composed of doubly infinite parallel plates, one of which has a constant prescribed temperature and the other of which is insulated. Considering the temperature-dependent viscosity and thermal conductivity of the water, approximate analytical (series) solutions for the temperature and flow velocity are derived. The transformed functions included in the solutions are obtained through a simple recursive procedure. Numerical computation is performed for the entire range of water temperature conditions around that at the density extremum point, i.e. 4°C. Numerical results illustrate the effects of the temperature-dependent properties on the transient temperature and flow velocity profiles, volumetric flow rate, skin friction and Nusselt number. The DTM is a useful new analytical method for solving nonlinear transient problems.

Article ID: HE2015Aug_10009

Title: Modeling of heat recovery from vehicle exhaust gasses

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Abstract

The waste heat from exhaust gasses can be estimated up to 30% of the energy generated by car's engine. There are different solutions for conversion of the waste energy into electricity, which might be further used to supply some car systems. In our studies we applied thermoelectrics. Such solution requires however very efficient heat exchanger in order to supply thermoelectrical modules with relatively high temperature gradients.

The study concerns development of waste heat recovery exchanger from exhaust gases of conventional motor car. In particular numerical design of the heat exchanger construction for optimal gasses transport parameters is performed. The main aim of the studies was to optimize the geometry of the exchanger in order to obtain maximum heat flux through the walls and minimum resistance of the gas flow. Apart from structural development of the exchanger the materials issues have been studied in order to select the optimal one.

Article ID: ICUA2015Aug_10000

Title: The Effect of Ultrasound Treatment on the Nail Fold Microcirculation

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Abstract

In view of the debate on the effect of using ultrasound treatment on the Nail Fold Microcirculation, we investigated the microvascular effects in situations of potential clinical interest. In this study we aimed to evaluate effects of ultrasound treatment on the nail fold microcirculation. Ultrasound, morphological characteristics of the capillaries, and their association were evaluated on the nail fold microcirculation in 60 male hamsters (n = 20 in each group): youth, older people and middle-aged group. In the current research, we compared the detection results of the nail fold microcirculation before and after ultrasound treatment with different acoustic intensity levels (0.25W/cm², 0.5W/cm² and

0.75W/cm², respectively). The caliber, blood profiles and number of loops were analyzed. After ultrasound treatment with lower acoustic intensity levels (0.25W/cm²), the caliber, blood flow and number of loops of the nail fold microcirculation achieved great improvements than before. However, with increase of the acoustic intensity (0.5W/cm² and 0.75W/cm²), there was a small amount of blood vessel constriction and even disappear. Ultrasound irradiation with lower acoustic intensity levels have the roles of improving microcirculation and increasing hemodynamics in nailfold of adults.

Article ID: ICUA2015Aug_10003

Title: Simulation on Cavitation Bubble Collapsing with Lattice Boltzmann Method

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Abstract

We consider a pressure (density) in a square flume solid boundaries and no-slip format condition formulation are introduced to investigate cavitation bubble for the two-dimensional lattice Boltzmann method (LBM). Used the coupling Carnahan-Starling equation of state (C-S EOS) and exact difference method (EDM) based on modified Shan-Chen model, the whole process of bubble collapse was observed complete and visual with equilibrium distribution function and rebound format. This paper analyzes the bubble form evolution, collapse time and dynamic character under the two dimensional press field.

Article ID: ICUA2015Aug_10007

Title: Effects of high hydrostatic pressure on lesions in ex vivo bovine livers generated by high intensity focused ultrasound

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Abstract

In recent years, high hydrostatic pressure is mainly used as a mean to study the effect of cavitation on lesions generated by high intensity focused ultrasound(HIFU). However, most of the researchers just suppress the cavitation completely by using a single extremely high hydrostatic pressure, without observing the change of lesions under a lower high hydrostatic pressure. To address this problem, this study is to investigate effects of lower high hydrostatic pressure of lesions generation in ex vivo bovine liver specimens produced by HIFU exposure theoretically and experimentally. Theoretical study is done by solving Khokhlov-Zabolotskaya-Kuznetsov(KZK) differential equation numerically at the spatial peak intensity of ultrasound(US) 6,095W/cm² and 9,752W/cm² respectively. Experimental part is performed using a US transducer of 1MHz frequency(diameter=70mm , geometrical focal length=55mm , aperture angle=79 degree) to generate the US exposure at the same spatial peak intensity (6,095W/cm² and 9,752W/cm²) in the ex vivo bovine liver specimens under the following hydrostatic pressure: 0.1MPa, 0.5MPa, 1.0MPa, 1.5MPa, 2.0MPa, 2.5MPa and 3.0MPa respectively. Passive cavitation detection (PCD) was used to monitor the ultrasonic cavitation signal during exposure under the atmospheric pressure. Simulation results of KZK equation indicated that the p+/p- of nonlinear propagation and the ratio value of harmonic wave and fundamental wave of 9,752W/cm² were higher than 6,095W/cm², but there was little difference between the thermal dose of same exposure dose, 6,095W/cm²×8s and 9,752W/cm²×5s. There was obviously broadband noise signal during exposure of higher acoustic intensity 9,752W/cm²×5s, which indicate that cavitation participate in the exposure. But did not in lower acoustic intensity 6,095W/cm²×8s. After exposing of 6,095W/cm²×8s, lesion in ex vivo bovine liver has no significant change with hydrostatic pressure(p>0.05), and corresponds to the calculation result of KZK equation which ignored cavitation. But after exposing of 9,752W/cm²×5s, lesion was bigger and distortion than that of 6,095W/cm²×8s under atmospheric pressure. And it was bigger than the calculation result of KZK equation. Lesion was grown when under 0.5MPa and 1.0MPa(p<0.05). But lesions were similar with others when pressure increased to 1.5MPa, 2.0MPa, 2.5MPa and 3.0MPa. They all were smaller than that under

atmospheric pressure, and correspond to the calculation result of KZK equation and that of $6,095\text{W}/\text{cm}^2 \times 8\text{s}$. Under the same exposure dose, cavitation induced by high acoustic intensity make more contribution to the lesion than nonlinear propagation. KZK equation was adapted to the simulation of tissue lesion with no cavitation occurred. The environmental pressure should increase to a higher level to suppress the cavitation when cavitation occurred. But increased the pressure appropriately can increase the lesion in focus, which provide a possibility to improve the efficiency of HIFU treatment.

Article ID: ICUA2015Aug_10009

Title: Properties of a Lens-focused Transducer Based on Piezoelectric Composites

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Abstract

High intensity focused ultrasound (HIFU for short) is widely used in clinical recently. As the core device of the focused ultrasound technology, the transducer is widely made of piezoelectric material. Due to the multimode coupling phenomenon of piezoelectric material, transducer of this type has a lower efficiency. To broaden the bandwidth of focused transducer with suppressing the multimode coupling phenomenon, and improving the electro-acoustic conversion efficiency, 1-3 piezoelectric composites as the ultrasonic emission material was used to replace Pb-based lanthanum doped zirconate titanates ceramic. A new type of lens-focused transducer was designed and produced based on 1-3 piezoelectric composites. Through the comparative study of frequency characteristic, it is proved that the 1-3 piezoelectric composites lens-focused transducer can not only increase the bandwidth of the transducer which is 3.13 times of the one based on Pb-based lanthanum doped zirconate titanates, but also suppress the radial vibration obviously to obtain a single vibration mode. Besides, the electro-acoustic conversion efficiency of the former lens-focused transducer is 1.88 times of the latter one. These results provide a theoretical and experimental foundation for the realization of ultrasonic transducer of

high efficiency on reliability and stability.

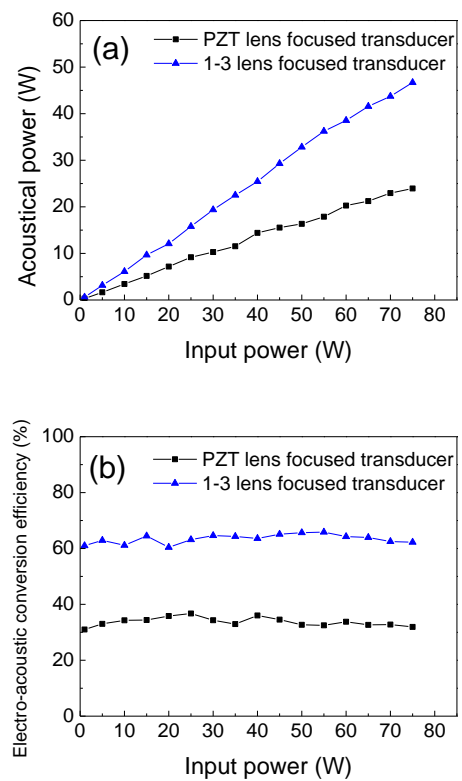


Fig. (a) Electric power-sound power curve; (b) Electro-acoustic conversion efficiency curve.

Article ID: ICUA2015Aug_10008

Title: Improvement of data acquisition rate in PA systems using CDMA techniques

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Abstract

Background, Motivation and Objective

Ultrasonic imaging systems based on phased arrays (PA) have been widely used in medical diagnosis during the last decades. In its most basic outline, these systems require to emit and receive with the entire array for each image line to be acquired. Since the acquisition time hardly depends on the velocity of propagation in the tissue, as much lines in the image, much more acquisition time and therefore lower frame rate is achieved. This limitation, critical in some medical specialties such as echocardiography and obstetrics, requires finding alternatives to reduce the emissions needed to obtain the

whole image.

Statement of Contribution/Methods

Code Division Multiple Access (CDMA) techniques provide us a way to achieve parallel acquisition of data lines reducing the total number of emissions. Encoding of the ultrasonic signal through pseudo-orthogonal codes is currently used in communications and location applications. Previous works [1] [2] have also studied combination of PA and encoded excitation, increasing frame rate and resolution. Taking advantage of orthogonality between codes, all of them can be emitted simultaneously, assigning a different code to every steering direction to be explored. In reception, data coming from a particular direction can be easily discriminated by means of a correlation process. Hence, an encoded excitation scheme could reach the theoretical maximum frame rate, which establishes a single emission to acquire the whole image. However, the use of encoding techniques involves a loss of contrast in the images due to the Multiple Access Interference (MAI), which is intrinsic to these techniques. Thus, a trade-off between frame rate improvement and loss of image quality has to be reached.

In this work we propose a new encoded PA excitation scheme based on Kasami codes. By merging a reduced number of images, each one obtained swapping the order in which the pseudo-orthogonal codes are emitted, this technique allows to get close to the theoretical maximum frame rate, maintaining at the same time an adequate contrast resolution.

Results/Discussion

Simulation models have been developed to study the proposed system. Preliminary results we present here are very encouraging, showing that our proposal increases the frame rate respect to a conventional PA. Thus, to scan a sectorial image between $\pm 45^\circ$ with 150 lines, our approach allows to obtain an acquisition rate 17 times higher than that attained with the PA, maintaining an adequate image quality.

Article ID: PPA2015Aug_10009

Title: Investigation of the parameters of low temperature pulse plasma discharge in relation to air cleaning units

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Abstract

Currently, high-voltage electrical devices are used position of multipoint discharge electrodes working in frequency-pulse mode. In this paper we studied low-temperature plasma (LTP) parameters in a hermetical chamber, consisting of the grounded pipe, coaxially disposed high-voltage electrode looking like succession of spiders with gaps 3-10 cm. Plasma created by positive nanosecond corona discharges, generated by high voltage pulses with a rise time of 50 ns, duration up to 400 ns, an amplitude up (U_a) to 90 kV and pulses repetition 50-1000Hz. This pulses generated by 3-stage Fitch generator(PG) which allows to overlay the voltage pulses on HV DC voltage (U_d) $U_a/U_d \approx 3$. Experiments were carried out in the air, moving at a linear velocity $v = 0.01$ to 10 m/s. We measured the voltage on the high voltage electrode, the current in the reverse wire PG, streamers current by probe measurements and integral illumination through a window of the chamber. It was found that parameters of LTP depends on the flow velocity. When $v > 0,15$ m/s, there are two peaks on the current oscillogram. Most of the energy input to the gas is connected with the second peak. In this case LTP has two zones of glow -bright at the electrode and diffuse throughout the gap. When $v < 0,15$ m/s, there is only first peak and a bright glow disappeared and there is some an increase in the electrical strength of the gap. The results of probe measurements of streamers current showed that in the gaps of a few centimeters when pulses duration of up to 0.5 μ s and the average electric field of less than 10 kV/cm breakdown is a streamer, not the leading character. This results are used in the design of plasma units "Corona" for the purification of gases from environmentally harmful emissions that are mass-produced FMKB "Horizon" (a branch of SC"SPC Gas Turbine" Salute ").

Article ID: RERP2015Aug_10007

Title: Knowledge of Radiation Dose and Possible Risks among Medical Doctors

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Abstract

Background: Radiation has been widely used in the medical investigations and many of these investigations involve exposing patients to significant amounts of ionizing radiation. Since doctors refer patients for such investigations, the level of their awareness of patient dose and associated risks is important. Recent data suggest that knowledge of radiation exposures among medical doctors is inadequate and deficient and they may grossly underestimate the doses of radiation for most commonly requested investigations.

Aim: With regard to the situation in Iran, there is no information available on the current knowledge level of doctors on radiation dose and associated risks. This preliminary study in capital city of Tehran, therefore aimed to evaluate their knowledge of the radiation doses their patients receive during some of the more common radiological procedures and awareness of associated risks of radiation exposure.

Methods: A questionnaire in multiple-choice format with a total of 10 questions was compiled based on literature review. The questionnaire consisted of four sections regard to patient dose exposure of radiological examinations; biological risks; national medico-legal regulations of ionizing diagnostic examinations; environmental impact and one question about their formal education regarding risks of medical radiation exposure. General practitioners and specialists working in different hospitals were asked to fill in the anonymous questionnaire, which took about 5 minutes. A total of 136 questionnaires were returned from 69 general practitioners and 67 doctors in various specialties. Statistical analyses of the data were conducted with SPSS package, version 17. A p-value of less than 0.05 was considered significant.

Results:

54% of general practitioners and 25% of specialties declare that they are not aware of biological risks of

radiation exposure in medical examinations because they have not received any formal education in this important field. There was a significant difference between two groups ($p < 0.05$).

In the section of patient dose: 56% of doctors did not know the correct definition of absorbed dose. Only 33% of doctors knew the dose exposure of a chest X-ray and only 31% knew the approximate doses of various more complex procedures involving ionizing radiation relative to a chest X-ray.

In the section of biological risks: 47% of doctors wrongly distinguished the stochastic effects of radiation from the deterministic effects and 38% of doctors did not know the correct answer about the most sensitive organs of the body to radiation. Only 23.5% of doctors were aware of the one in 2000 risk of induction of fatal carcinoma from CT of the abdomen. There were no significant differences between two groups in the above two sections ($p > 0.05$).

In the section of environmental impact: 79% of doctors wrongly underestimated the contribution of nuclear and radiological tests in exposure of an average person and in overall public radiation exposure. However, there was a significant difference between awareness of two groups in this section ($p < 0.05$).

In the section of medico-legal regulations of ionizing diagnostic examinations: 89% of doctors believed that were aware of given their legal responsibility as referrers under the Ionizing Radiation (Medical Exposure) regulations and aware of forbidden unjustified exposure.

Conclusion: An alarming finding of this study is doctors are largely unaware of biorisks and dose exposure of the ionizing exams they prescribe or perform daily, which may cause them to request more radiological examinations than appropriate. The study also demonstrated a need to improve knowledge of radiation exposure and adverse biological effects amongst medical doctors by training courses. The cultural benefit of these trainings will be immense to enhance the protection of patients and physicians themselves, to abate healthcare costs, reduce long-term risks, and improve health care standards.

Article ID: RERP2015Aug_10015

Title: Ensuring uniformity of measurements of

absorbed dose intensity of the photon and electron radiation in radiation technologies

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Abstract

Ensuring reliability and traceability of the unit of absorbed dose of intense photon and electron radiation, used in radiation technologies in industry, is based on the creation of a system of sample measures and methods of transmission with minimal loss of dimensional accuracy of the unit of absorbed dose from the sample tools to working dosimeters and is a necessary basis of yield growth, of increase of labour productivity and the introduction of innovative products. The measuring capabilities of the State primary special standard of power unit of absorbed dose of intensity photon, electron and beta radiation for radiation technologies and of the standards of the absorbed dose of photon and electron radiation, used for radiation monitoring of radiation processes.

Article ID: RERP2015Aug_10006

Title: The Formation of Neutron Fields from Radionuclide Neutron Sources for The Purposes of Metrological Support of Measurements of Dosimetric Quantities

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Abstract

The problems of formation of neutron fields using radionuclide neutron sources. Theoretical estimates of the contribution to the values of neutron flux density, Kerma and ambient dose equivalent rate ambient neutron radiation under various conditions of application of neutron sources. Coefficients for calculation of values of different variables at different distances from the source using the measured values at certain distances from the source. The values for medium energy neutron spectra obtained using radionuclide neutron sources.

Article ID: MANPP2015Aug_10009

Title: Development and application of portable reference radiation fields with multi-point single-energy photon

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Abstract

Based on the needs of detection and calibration with low-energy X-ray, we used the relationship characteristics of X-ray fluorescence, absorption and limit potential target excitation, developed the X-ray device with adjustable intensity (single photon to 107/s), optional energy points (4keV-20keV), highly portable (≤ 1 kg), by the matching design of fluorescence energy conversion target and modulation means, coupled transport simulation of electron-photon in target, meanwhile, we solved the low-energy X-ray radiation field diagnose problems with HPGe detector, which calibrated with combined technique, including relatively wide energy efficiency simulation and single energy point of absolute efficiency calibration. In single-photon calibration field of soft X-ray pulsar navigation detect, the portable reference single energy radiation fields was applied effectively and got good result, the reference radiation fields provided perfect experiment means for the scientific study of pulsar navigation detecting, sun X-ray monitoring, etc.

Article ID: MANPP2015Aug_10010

Title: Modified Tunneling Radiation of Fermions from a Spherically Symmetric Spacetime with Dark Matter

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Abstract

In the paper, we use the generalized Dirac equation to study the Hawking temperature and entropy of a spherically symmetric spacetime with the dark matter. The results show that the dark matter can influence the

thermodynamic properties of the black hole. Meanwhile, we find the GUP corrected temperature and entropy are not only determined by the nature of black but also related to the properties of tunneling particles. Besides, the GUP can

slow down the increase of Hawking temperature and causes the remnants.

Part V Instructions for Presentations

Oral Presentation

Devices Provided by the Conference Organizing Committee:

- Laptops (with MS-office & Adobe Reader)
- Projectors & Screen
- Laser Sticks

Materials Provided by the Presenters:

- PowerPoint or PDF files

Duration of each Presentation:

- Regular Oral Session: 10-15 Minutes of Presentation
- Plenary Speech: 40-50 Minutes of Presentation

Part VI Hotel Information

About Hotel

Guangdong Hotel (Shanghai) is located on Yi Xian Road, DaBaiShu industry & trading center in Shanghai, adjacent to the prestigious universities, such as Fudan, Tongji and Shanghai international studies university. DaBaiShu area is one of the 12 commercial zones in Shanghai, where conveniently linked by track line 3 and inner elevated ring road. Its 15 minutes ride to the Bund and Downtown area.

Address: 328 Yixian Road, Hongkou District, Shanghai

Contact Number: 86-21-55589888

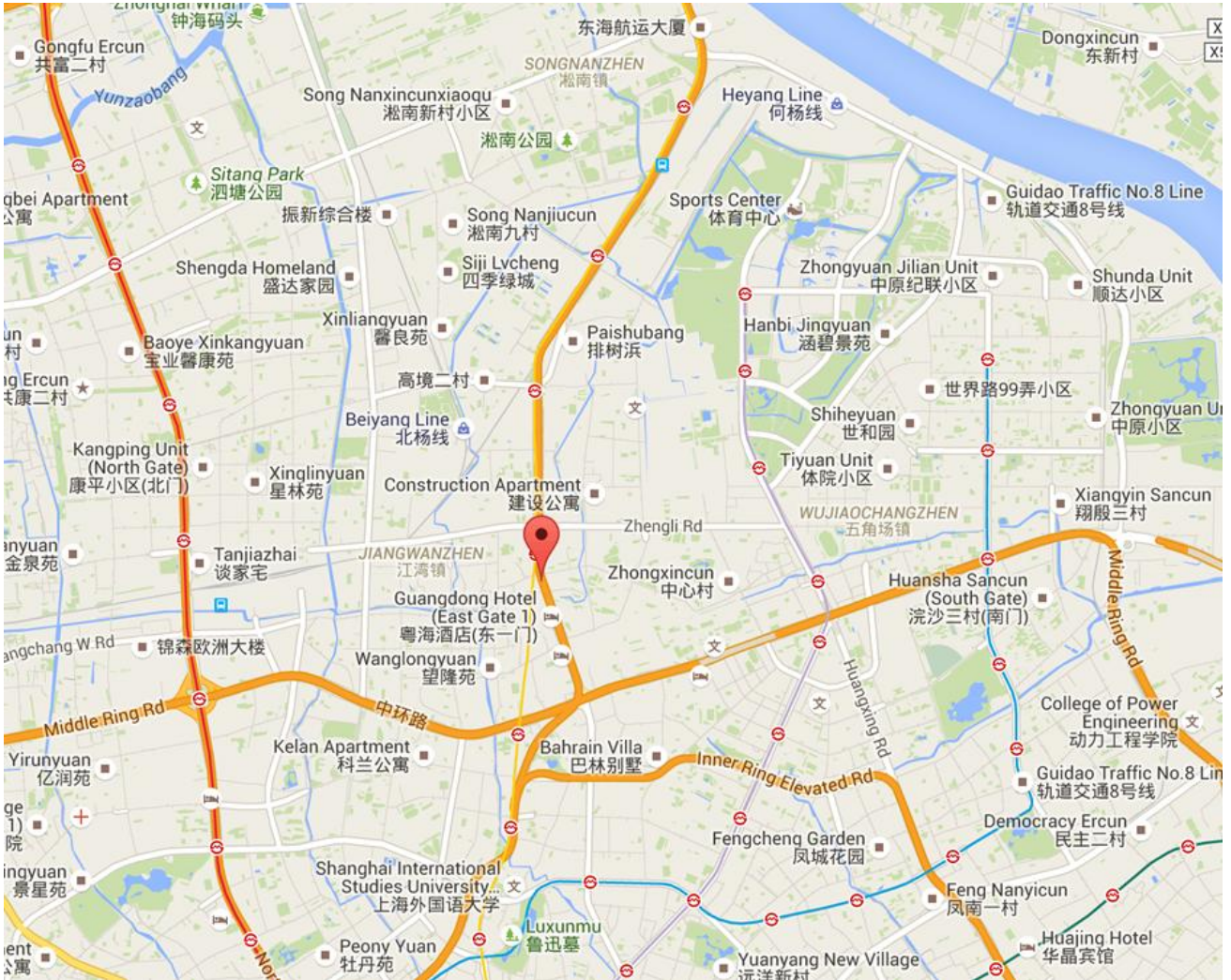
Fax Number: 86-21-55512808

Webiste: <http://www.shgdh.com/en>

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