Table of Contents

Part I Conference Schedule

Time: May 29-31, 2019
Location: Kunming Jin Jiang Hotel (昆明锦江大酒店)

Date	Time	Lobby	
May 29	**14:00-17:00**	**Registration**	
Date	**Time**	**Room 1 (1 号会议室) (3rd Floor)**	**Room 2 (2 号会议室) (3rd Floor)**
May 30	**08:30-12:00**	**Invited Session I: Biomedical Science** **Chair:** TBD **Group photo & Coffee Break: 10:30-10:45**	**Engineering: Invited Session I** **Chair:** TBD **Group photo & Coffee Break: 10:30-10:50**
	12:00-13:30	**Lunch**	**Revolving restaurant[旋转餐厅], 23rd Floor**
	Time	**Room 1 (1 号会议室) (3rd Floor)**	**Room 2 (2 号会议室) (3rd Floor)**
	14:00-18:00	**Invited Session II: Biomedical Science** **Chair:** TBD **Group photo & Coffee Break: 16:00-16:20**	**Engineering: Invited Session I** **Chair:** TBD **Group photo & Coffee Break: 16:00-16:20**
	18:00-19:30	**Dinner**	**Revolving restaurant[旋转餐厅], 23rd Floor**
Date	**Time**	**Room 1 (1 号会议室) (3rd Floor)**	**Room 2 (2 号会议室) (3rd Floor)**
May 31	**08:30-12:00**	**Invited Session III: Protein and Proteomics** **Chair:** Dr. Xusheng Wang **Group photo & Coffee Break:10:30-10:50**	**Invited & Oral Session: Nursing and Healthcare** **Chair:** TBD **Group photo & Coffee Break:10:10-10:25**
	12:00-13:30	**Lunch**	**Revolving restaurant[旋转餐厅], 23rd Floor**
June 1	**07:30-15:00**	**One day tour in Kunming (TBD)(Own expense)**	

Part II Invited Speeches

Invited Session I: Biomedical Science

Invited Speech 1: Modulation of Macrophages in Murine Acute Lung Injury

Speaker: Prof. Zhilong Jiang, Zhongshan Hospital, Fudan University, China
Time: 08:30-09:10, Thursday Morning, May 30, 2019
Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract
Acute lung injury and acute respiratory distress symptom (ALI/ARDS) are life-threatening condition in critically ill patients. Macrophages are heterogenous cell components in lung tissues and play important role in the pathogenesis of ALI/ARDS. There are alveolar macrophages (AMs), interstitial macrophages (IMs) and circulating undifferentiated monocytes/macrophages. Our results in vivo revealed that depletion of AMs exacerbated ALI, accompanied with more infiltration of neutrophils, whereas depletion of circulating monocyte/macrophages attenuated ALI, indicating the protective role of AMs and pro-inflammatory function of monocyte/macrophages. Resveratrol (Res) is a natural polyphenol that has anti-oxidative stress and immune suppressive effects. Our study in wild-type (WT) and SOCS3 conditional knock-out (KO) mice revealed that Res treatment significantly reduced ALI severity in WT mice, accompanied with much lower population of Siglec F-CD45+ phenotype macrophages. In addition, the CD206+ M2 subtype macrophages were increased in the WT mice after Res treatment. However, the beneficial effects and alteration of macrophages phenotypes were not observed in the SOCS3 KO mice. The results confirmed the positive relationships of Siglec F-CD45+ and negative relationships of CD206+ M2 subtype macrophages with ALI. Res may exert the therapeutic effects through SOCS3 signaling and subsequently modulation of these macrophage phenotypes. Our further study in recombinant surfactant protein D (rSP-D)-treated mice also indicated the positive relationships between Siglec F-CD45+ phenotype macrophages and ALI, in which rSP-D treatment significantly reduced ALI severity, accompanied with less influx of neutrophils and population of Siglec F-CD45+ phenotype monocytes/macrophages. Thus, we conclude that biological activity of lung macrophages can be modulated by some adjuvants such as anti-oxidants and anti-inflammatory proteins to exert immune protective role in inflammatory diseases such as ALI/ARDS.

Invited Speech 2: Development of cancer stem cell vaccine in an adjuvant setting

Speaker: Dr. Qiao Li, University of Michigan, USA
Time: 09:10-09:50, Thursday Morning, May 30, 2019
Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract
Many cancers are driven and maintained by a subpopulation of cells that display stem cell properties and are therefore referred to as cancer stem cells (CSCs). Targeting CSCs may increase the therapeutic efficacy of current cancer treatment, particularly in the adjuvant setting. In this study, established s.c. SCC7 tumors were surgically removed followed by treatment using $ALDH^{high}$ SCC7 CSC-DC vaccine, which significantly reduced local tumor relapse and prolonged animal survival. This effect was significantly augmented by simultaneous administration of anti-PD-L1 mAb. In the minimal disease setting of D5 melanoma model, $ALDH^{high}$ CSC–DC vaccination significantly inhibited tumor growth and reduced spontaneous lung metastases. CCR10 and its ligands were down-regulated on $ALDH^{high}$ D5 CSCs and in lung tissues respectively in animals subjected to $ALDH^{high}$ D5 CSC–DC vaccination. Down-regulation of CCR10 by siRNA significantly blocked tumor cell migration *in vitro* and metastasis *in vivo*. T cells harvested from $ALDH^{high}$ D5 CSC–DC vaccinated animals selectively killed the $ALDH^{high}$D5 CSCs. B cells harvested from $ALDH^{high}$ D5 CSC–DC vaccinated animals produced IgG which bound to $ALDH^{high}$ D5 CSCs, resulting in their lysis *via* CDC. As a result, CSC-DC vaccination significantly decreased the percentage of $ALDH^{high}$ cells in residual tumors by destroying cancer stem cells. These data indicate that, when used in an adjuvant setting, $ALDH^{high}$ CSC–DC vaccines effectively inhibit local tumor recurrence, reduce spontaneous lung metastasis, and prolong animal survival, compared with traditional DC vaccines and that simultaneous PD-L1 blockade can significantly enhance this effect. These findings may lead to the development of novel immunotherapeutic strategies for cancer treatment *via* the modulation of both cellular and humoral anti-CSC immunity.

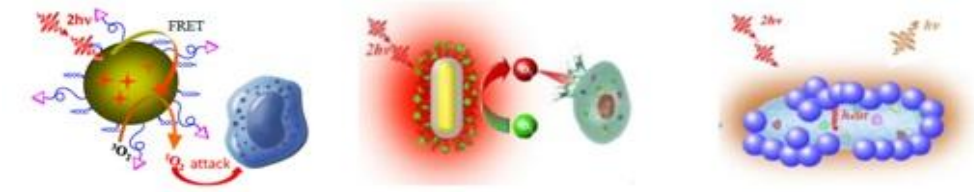
Invited Speech 3: Nanomaterials for Imaging Guided Two-photon Phototherapy

Speaker: Prof. Qing-Hua Xu, National University of Singapore, Singapore
Time: 09:50-10:30, Thursday Morning, May 30, 2019
Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract
Photodynamic therapy (PDT) is a promising noninvasive treatment of cancers and other diseases. Two-photon excitation PDT (2P-PDT) is advantageous over the traditional one-photon counterpart by offering unique advantages of deeper penetration into body tissues, more confined treatment area and 3-dimensional spatial selectivity to reduce adverse effects to nearby healthy tissues. However, clinical applications of 2P-PDT are limited by the small two-photon absorption capability of current photosensitizers. A lot

of research efforts have been devoted to the development of novel two-photon photosensitizers with improved two-photon light harvesting capability.

Here I will present our recent efforts on development of various nanophotosensitizersthat allow simultaneous two-photon imaging and photodynamic therapy with enhanced efficiency. We used two strategies to develop composite nanomaterials with enhanced two-photon optical properties. One is based on energy transfer from conjugated polymers which acted as two-photon light harvesting materials to transfer the absorbed energy to photosensitizers. We have developed photosensitizers doped conjugated polymer nanoparticles that display strong two-photon absorption capability, high emission yield and singlet oxygen generation capability, selectively cancer cell targeting and killing capability at the same time. The second approach is based on plasmon resonance enhancement. We have developed various plasmonengineered nanocomposites with enhanced two-photon properties for simultaneous two-photon imaging and phototherapy. The exceptional properties of these nano-photosensitizers render them great potentials for high spatial resolution imaging-guided two-photon phototherapy.



Invited Speech 4: Development of Tumor-Targeting Nanoagents for Photo-Chemo- Therapy of Breast Cancer

Speaker: Prof. Yu-Hsiang Lee, National Central University
Time: 10:45-11:25, Thursday Morning, May 30, 2019
Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract
Background: Breast cancer is the most frequently diagnosed cancer and the leading cause of cancer death among females worldwide. Among various types of breast cancer, the human epidermal growth factor receptor 2 (HER2)-overexpressing breast cancer is known to be more aggressive and often resistant to medicinal treatment, leading to an insufficient prognosis and poor susceptibility to chemotherapy and/or hormonal therapy in the current clinic. These circumstances implicate that developing an improved therapeutic strategy rather than persistently changing the anticancer drugs for trying is truly needed to successfully cure this type of breast cancer. In this study, we aimed to fabricate anti-HER2 indocyanine green (ICG)-doxorubicin (DOX)-loaded polyethyleneimine-coated perfluorocarbon double nanoemulsions (HIDPPDNEs) to explore the co-administration of phototherapy and chemotherapy for HER2-overexpressing breast cancer in vitro..

Results: The HIDPPDNE was first characterized as a sphere-like nanoparticle with surface charge of -57.1 . 5.6 mV and size of 340.6 . 4.5 nm, whereas the DOX release rates for the nanodroplets within 48 h in 4 and 37 oC were obtained by 8.13 . 2.46% and 19.88 . 2.75%, respectively. We then examined the target-ability of the nanodroplets and found that the uptake efficiency of the HIDPPDNEs in HER2-positive MDA-MB-453 cells was approximately 2.5-fold higher than that in HER2-negative MCF7 cells, showing that the HIDPPDNEs were binding specific to HER2-expressing cells. In comparison to freely dissolved ICG, the HIDPPDNEs conferred an enhanced thermal stability to the entrapped ICG, and were able to provide a comparable hyperthermia effect and markedly increased production of singlet oxygen under near infrared irradiation (808 nm; 6 W/cm2). Based on the viability analyses, the results showed that the HIDPPDNEs were effective on cell eradication upon near infrared irradiation (808 nm; 6 W/cm2), and the resulting cell mortality was even higher than that caused by using twice amount of encapsulated DOX or ICG alone.

Conclusion: This work demonstrated that the HIDPPDNEs were able to provide improved ICG stability, target specificity, and enhanced anticancer efficacy compared to equal dosage of free ICG and/or DOX, showing a high potential for use in HER2 breast cancer therapy with reduced chemotoxicity.

Invited Speech 5: Bio-responsive nanoparticles for systemic siRNA delivery and effective cancer therapy

Speaker: Prof. Xiaoding Xu, Sun Yat-Sen University, China
Time: 11:25-12:05, Thursday Morning, May 30, 2019
Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract
Nanomedicine has shown great promise for more effective and safer cancer therapy [1]. However, the successful clinical translation of cancer nanotherapeutics still faces considerable challenges due to the complexities and heterogeneity of tumors, therefore requiring the rational design of nanoparticle (NP) delivery systems and patient selection. To address the barriers involved in systemic NP delivery to solid tumors (e.g., blood circulation, tumor accumulation and penetration, cellular uptake, and intracellular release), bio-responsive NP-based delivery technique has recently emerged for effective cancer treatment [2]. These bio-responsive NP delivery systems can respond to tumor microenvironment (TME) (e.g., acidic pH, over-expressed enzymes and hypoxia) to change their physicochemical properties including size, zeta potential and hydrophilic-hydrophobic balance, thereby leading to enhanced diffusion, cellular uptake, and/or intracellular cargo release [3-5]. Herein, we reported a unique and robust TME pH-responsive multistaged NP platform for systemic targeted siRNA

delivery and effective cancer therapy. This NP platform is composed of a sharp TME pH-responsive PEGylated polymer and a tumor cell-targeting and -penetrating peptide-amphiphile (TCPA). After encapsulating the siRNA/TCPA complexes, the resulting NP platform shows the following features for multistaged siRNA delivery: i) PEG outer shell prolongs blood circulation and thus enhances tumor accumulation; ii) sensitive response of the hydrophobic poly(2-(hexamethyleneimino) ethyl methacrylate) (PHMEMA) to TME pH induces the rapid disassembly of NPs and exposure of siRNA-TCPA complexes at tumor site; iii) tumor cell-targeting ability of TCPA attributable to its RGD ligand segment improves the cellular uptake of the siRNA-TCPA complexes; iv) cell-penetrating ability of TCPA attributable to its cationic polyarginine segment enhances the cytosolic siRNA transport to achieve efficient gene silencing; and v) facile synthesis of the PHMEMA polymer and TCPA as well as robust NP formulation enable the scale-up of this NP platform. Key Words:Nanoparticle, Bio-responsive, siRNA Delivery, Cancer therapy

Reference

[1] Farokhzad OC*, Langer R*. Impact of Nanotechnology on DrugDelivery.ACS Nano, 2009, 3:16-20

[2] Shi J,Kantoff PW, Wooster R, Farokhzad OC*. Cancer Nanomedicine: Progress, Challenges and Opportunities. Nat Rev Cancer, 2017, 17:20-37.

[3] Xu X, Wu J, Liu Y, Yu M, Zhao L, ZhuX,Bhasin S, Li Q, Ha E, Shi J*, Farokhzad OC*. Ultra-pH-Responsive and Tumor-Penetrating Nanoplatform forTargeted siRNA Delivery with Robust Anti-Cancer Efficacy. AngewChemInt Ed 2016, 55:7091-7094.

[4] Xu X, Saw PE, Tao W, Li Y, Ji X, Bhasin S, LiuY,AyyashD, Rasmussen J,Huo M, Shi J*,Farokhzad OC*. ROS-Responsive Polyprodrug Nanoparticles for Triggered Drug Delivery and Effective Cancer Therapy.Adv Mater 2017, 29:1700141.

[5] Wang S, HuangP*, Chen X*. Hierarchical Targeting Strategy for Enhanced Tumor Tissue Accumulation/Retention and Cellular Internalization. Adv Mater 2016, 28:7340-7364.

Invited Speech 6: Free-Blockage Mesoporous Anticancer Nanoparticles Based on Wetting Transformation of Nanopores

Speaker: Prof. Yongqiang Wen, University of Science and Technology Beijing, China
Time: 12:05-12:45, Thursday Morning, May 30, 2019
Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Wettability is a very common phenomenon in nature. As a fundamental property, it is responsible for numerous chemical and biological aspects of molecular interactions in water, such as the water channels through biological membranes, which controls the water and ionic fluxes by adjusting the wettability of the channel.Inspired by this phonomenon, weproposed a new concept of free-blockage

controlled release system, which was achieved by controlling the wettability of the internal surface of nanopores on MSNs.

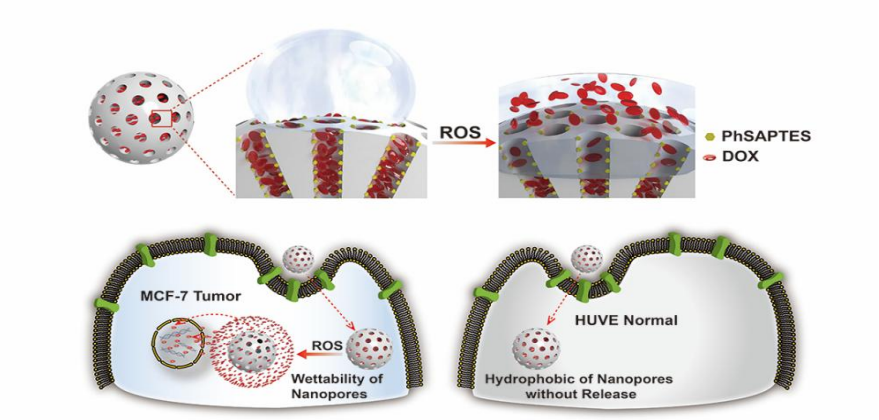


Figure 1 Schematic representation of the free-blockage on-off characteristics of nanopores on MSNs functionalized with PhSAPTES due to ROS-responsive wettability and its selective intracellular release of DOX.

We functionalized the internal surface of nanopores on MSNs-PhS with hydrophobic phenyl sulfide (PhS) groups, which was protected from being wetted by water, successfully inhibiting the release of DOX. For cancer therapy, excessive production of ROS is one of the remarkable intrinsic biological features in solid tumor microenvironments. Upon the stimulation with ROS, hydrophobic PhS groups can be easily oxidized to electron-withdrawing hydrophilic phenyl sulfoxide or phenyl sulfone. Thus, the nanopores could be gradually wetted, leading to the release of DOX from the nanopores.Moreover, further studies have shown that the system can selectively release the entrapped DOX in MCF-7 cells triggered by intracellular ROS but not in normal HUVECs containing ROS with low levels.

The wettability-determined free-blockage controlled release system is simple and effective, and it could also be triggered by intracellular biological stimuli, which provides a new approach for the future practical application of drug delivery and cancer therapy.

References

[1] Yaya Cheng, Xiangyu Jiao, Tailin Xu, Wenqian Wang, Yu Cao, Yongqiang Wen, Xueji Zhang, Small, 2017, 13,1701942.

[2] Linfeng Chen, Wenqian Wang, Bin Su, Yongqiang Wen, Chuanbao Li, Mingzhu Li, Xiaodi Shi, Hongwu Du, Yanlin Song, Lei Jiang, ACS Nano 2014, 8, 744–751 .

[3] Yaya Cheng, Xiangyu Jiao, Liang Zhao, Yang Liu, Fang Wang, Yongqiang Wen, Xueji Zhang, Journal of Materials Chemistry B, 2018, 6, 6269-6277.

Invited Session II: Biomedical Science

Invited Speech 7: ImmunoPET and Near-Infrared Fluorescence Imaging of Pancreatic Cancer with a Dual-Labeled Bispecific Antibody Fragment

Speaker: Prof. Haiming Luo, Huazhong University of Science and Technology (HUST), China
Time: 14:00-14:40, Thursday Afternoon, May 30, 2019
Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Dual-targeted imaging agents have shown improved targeting efficiencies in comparison to single-targeted entities. The purpose of this study was to quantitatively assess the tumor accumulation of a dual-labeled heterobifunctional imaging agent, targeting two overexpressed biomarkers in pancreatic cancer, using positron emission tomography (PET) and near-infrared fluorescence (NIRF) imaging modalities. A bispecific immunoconjugate (heterodimer) of CD105 and tissue factor (TF) Fab' antibody fragments was developed using click chemistry. The heterodimer was dual-labeled with a radionuclide (^{64}Cu) and fluorescent dye. PET/NIRF imaging and biodistribution studies were performed in four-to-five week old nude athymic mice bearing BxPC-3 (CD105/TF$^{+/+}$) or PANC-1 (CD105/TF$^{-/-}$) tumor xenografts. A blocking study was conducted to investigate the specificity of the tracer. Ex vivo tissue staining was performed to compare TF/CD105 expression in tissues with PET tracer uptake to validate in vivo results. PET imaging of Cu-NOTA-heterodimer-ZW800 in BxPC-3 tumor xenografts revealed enhanced tumor uptake (21.0 ± 3.4%ID/g; n = 4) compared to the homodimer of TRC-105 (9.6 ± 2.0%ID/g; n = 4; $p < 0.01$) and ALT-836 (7.6 ± 3.7%ID/g; n = 4; $p < 0.01$) at 24 h postinjection. Blocking studies revealed that tracer uptake in BxPC-3 tumors could be decreased by 4-fold with TF blocking and 2-fold with CD105 blocking. In the negative model (PANC-1), heterodimer uptake was significantly lower than that found in the BxPC-3 model (3.5 ± 1.1%ID/g; n = 4; $p < 0.01$). The specificity was confirmed by the successful blocking of CD105 or TF, which demonstrated that the dual targeting with ^{64}Cu-NOTA-heterodimer-ZW800 provided an improvement in overall tumor accumulation. Also, fluorescence imaging validated the PET imaging, allowing for clear delineation of the xenograft tumors. Dual-labeled heterodimeric imaging agents, like ^{64}Cu-NOTA-heterodimer-ZW800, may increase the overall tumor accumulation in comparison to single-targeted homodimers, leading to improved imaging of cancer and other related diseases.

Invited Speech 8: Nanomicelles codelivery of herbal flavonoids and chemotherapeutics to drug-resistant breast cancer cell

Speaker: Prof. Yan Xie, Shanghai University of Traditional Chinese Medicine, China
Time: 14:40-15:20, Thursday Afternoon, May 30, 2019
Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract
Chemotherapy is one of the most efficient strategies for cancer therapy, but some cancer cells become insensitive to the appointed chemotherapy drug which is known as drug resistance. Recent years, this issue is the primary cause of chemotherapy failure in clinic, which increased the cancer-related mortality. Natural compounds are biologically active substances present in plants, such as carotenoids, flavonoids, alkaloids, and terpenoids, which have been proposed as possible adjuvants of traditional chemotherapy due to their long-term safety and negligible even inexistent side effects. In this study, we constructed a reduction-sensitive mixed micelles system for targeted delivery of chemotherapy drug doxorubicin and a typical flavnoid component quercetin on tumor to alleviate drug resistance and enhance the antitumor efficiency. This research will provide some useful references for restoring the sensitivity of chemotherapeutic drug to drug resistance tumor.

Invited Speech 9: Nuclear Spin Catalysis in Cell Biomolecutar Nanoreactors: Premises and Promises

Speaker: Dr. Vitaly K. Koltover, Institute of Problems of Chemical Physics, Russia
Time: 15:20-16:00, Thursday Afternoon, May 30, 2019
Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract
Cells are composed from atoms of chemical elements, many of which have magnetic and nonmagnetic stable isotopes. In physics and chemistry, magnetic isotope effects (MIEs) have long been known for a number of magnetic isotopes, among them ^{13}C, ^{17}O, ^{29}Si, ^{33}S, ^{73}Ge, and ^{235}U [1]. Not long ago, MIEs have been discovered in experiments with living cells. In studies of effects of different isotopes of magnesium, magnetic ^{25}Mg and nonmagnetic ^{24}Mg, on the post-radiation recovery of yeast cells, *S. cerevisiae*, irradiated by short-wave UV light, it has been revealed that the recovery process of the cells, enriched with the magnetic ^{25}Mg, proceeds two times faster than the post-radiation recovery of the cells, enriched with

the nonmagnetic ^{24}Mg. In the experiments with another cell model, bacteria *E. coli*, it has been found that bacterial cells adapt essentially faster to the growth media enriched with magnetic ^{25}Mg compared to the media enriched with the nonmagnetic isotopes of magnesium. Besides, the cells enriched with ^{25}Mg demonstrate the reduced activity of the important antioxidant enzyme, superoxide dismutase, by comparison to the cells enriched with the nonmagnetic ^{24}Mg. Thus, it has been discovered that living cell perceive the nuclear magnetism (see Refs. in [2]). Furthermore, MIEs have been revealed in studies of the most important molecular motor of cell bioenergetics, myosin isolated from smooth muscle. The rate of the ATP hydrolysis, driven by myosin, is 2.0-2.5 times higher with ^{25}Mg than that with the nonmagnetic ^{24}Mg or ^{26}Mg [3]. The similar MIE has been revealed with zinc. While Zn^{2+} performs the cofactor function less efficiently than Mg^{2+}, the rate of the ATP hydrolysis driven by myosin is 40-50 percent higher with the magnetic ^{67}Zn as compared to the nonmagnetic ^{64}Zn or ^{68}Zn [4]. Moreover, the beneficial MIE of ^{25}Mg has been discovered in the reaction of ATP hydrolysis catalyzed by mitochondrial H^+-ATPase, isolated from yeast cells and reconstituted into the proteoliposome membrane. On its own, factual evidence of MIE unambiguously indicates that there is a spin-selective rate-limiting step, the “bottle-neck” in the chemo-mechanical cycle of the enzyme, that is accelerated by the nuclear spins of ^{25}Mg or ^{67}Zn. The plausible explanations of the nuclear spin catalysis in the biomolecular cell nanoreactors are discussed in [5]. Although detailed mechanisms of ability of the biocatalysts to perceive the nuclear magnetism require further investigations, there are the grounds to believe that this new field, nuclear spin catalysis, highlights promising venues for future research with possible applications of the stable magnetic isotopes in medicine for creating novel anti-stress drugs including the low-toxic anti-radiation protectors.

References

1. Zeldovich Ya.B., Buchachenko A.L., Frankevich E.L. *Advances in Physical Sciences (Physics Uspekhi)*, 1988, 155, 3-45.
2. Avdeeva L.V., Koltover V.K. *Moscow Univ. Chemistry Bull.*, 2016, 71, 160-166.
3. Koltover V.K., Labyntseva R.D., Karandashev V.K., Kosterin S.A. *Biophysics*, 2016, 61, 200-206.
4. Koltover V.K., Labyntseva R.D., Kosterin S.O. In: *Myosin: Biosynthesis, Classes and Function* (ed. D. Broadbent). New York: Nova Science Publishers Inc., 2018, pp. 135-158.
5. Koltover V.K. *J. Molecular Liquids*, 2017, 235, 44-48.

Invited Speech 10: Vitamin K2 Promotes Glycolysis in Bladder Carcinoma Cells that Leads to AMPK-dependent Autophagic Cell Death

Speaker: Prof. Ling Hong, Huazhong University of Science and Technology, China
Time: 16:20-17:00, Thursday Afternoon, May 30, 2019
Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract
Cancer cells exhibit a high rate of glycolysis, compared to normal cells, to meet their fast growth and requirement for metastasis. Targeting glycolysis against cancer cells appears to intelligent strategies. Here, we show that Vitamin K2, an anticancer agent, promotes the glycolysis in bladder cancer cells, while inhibiting the tricarboxylic acid (TCA) cycle. Activation of PI3K/AKT and HIF-1α is crucial for Vitamin K2-induced glycolysis upregulation that results in metabolic stress and subsequent AMPK-dependent autophagy and apoptosis. Intriguingly, glucose supplementation abrogates AMPK activation and attenuates autophagic cell death in Vitamin K2-treated cells. Both PI3K/AKT inactivation and HIF-1α blockade counteract Vitamin K2-induced AMPK-dependent autophagic cell death. Besides, 2-DG, DCA and 3-BP (three typical glycolytic inhibitors) respectively abolish AMPK-dependent autophagic cell death triggered by Vitamin K2 through glycolysis inhibition. Collectively, these findings reveal that Vitamin K2 could trigger AMPK-dependent autophagic cell death in bladder cancer cells by elevating the glycolytic process.

Invited Speech 11: Role of non-coding RNAs in the pathogenesis of lung diseases

Speaker: Prof. Lin Liu, Oklahoma State University, USA
Time: 17:00-17:40, Thursday Afternoon, May 30, 2019
Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract
Although the majority of the mammalian genome has beentranscribed, less than 2% of the transcripts encode proteins. Non-coding RNAs have been increasingly recognized for their importance in regulating various biological processes. Non-coding RNAs are classified as small non-coding RNAs with 20-30 nucleotides such as microRNAs and long non-coding RNAs (lncRNAs) with a size of > 200 nucleotides.While microRNAs mainly control gene expression at the post-transcriptional level, lncRNAs act by interacting with RNA, DNA and protein to activate or repress gene expression at various levels, including transcription, splicing, mRNA stability, and translation. This talk will discuss strategies to identify non-coding RNAs involved in lung diseases and follow-up functional and mechanistic studies of the identified non-coding RNAs.

Invited Session III: Protein and Proteomics

Invited Speech 12 Diversity of c-di-GMP-binding proteins and mechanisms

Speaker: Prof. Shan-Ho Chou, National Chung Hsing University, Chinese Taipei
Time: 08:30-09:10, Friday Morning, May 31, 2019
Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract
The discovery of c-di-GMP second messenger was one of the most important breakthroughs in the microbial world in the past two decades. This molecule is present in most bacteria, regulating a plethora variety of important bacterial activities such as biofilm formation, biogenesis and function of flagella and pili, cell differentiation, and biosynthesis of natural product and secretion of pathogenic factors, through binding to an unprecedented array of effectors. There are usually tens or hundreds of enzymes that make or break c-di-GMP in every bacterial genome. However, only a few c-di-GMP receptors have been characterized to date. To get a better understanding of how c-di-GMP carries out its diverse functions, it is of crucial importance to decipher most or all possible c-di-GMP binding motifs. Several c-di-GMP receptors have been found but most of them usually exhibit narrow phylogenetic distribution1. Recently, MshE, an ATPase associated with the mannose-sensitive hemagglutinin type IV pilus formation in Vibrio cholerae, was shown to bind c-di-GMP well by a DRACALA methodology but no canonical binding motif was found in binding c-di-GMP. We have solved the crystal structure of the MshEN/c-di-GMP complex, which revealed an entirely new c-di-GMP binding mode2. It is fused with many other domains such as ATPase, glycosyltransferase, CheA, CheX, REC, cNMP-binding, HD-GYP, and guanylate cyclase, which have been found to play various important roles in bacterial physiology. MshEN is thus a new generation c-di-GMP binding protein that may serve as a good target for developing novel drugs against bacteria without causing drug resistance.

(1) **Shan-Ho Chou*** & Michael Y. Galperin* (2016) (Review) Diversity of c-di-GMP-binding proteins and mechanisms, **J. Bacteriology**, 198 (1), 32-46.
(2) Yu-Chuan Wang, Ko-Hsin Chin, Zhi-Le Tu, Jin He, Christopher J. Jones, David Zamorano Sanchez, Fitnat H. Yildiz, Michael Galperin, & **Shan-Ho Chou*** (2016) Nucleotide binding by the widespread high-affinity cyclic di-GMP receptor MshEN domain, **Nature Communications**, 7:12481.

Invited Speech 13: BMP-2 induces EMT and breast cancer stemness through Rb and CD44

Speaker: Prof. Ju Wang, Jinan University, China
Time: 09:10-09:50, Friday Morning, May 31, 2019
Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract
Bone morphogenetic protein 2 (BMP-2) has been reported to facilitate epithelial-to-mesenchymal transition (EMT) and bone metastasis in breast cancer xenograft models. To investigate the role of BMP-2 in the development of breast cancer stem cells (BCSCs), and to further elucidate the mechanisms underlying its influence on breast cancer metastasis, we conducted a comprehensive molecular study using breast cancer cell lines and clinical samples. Our results showed that downregulation of Rb by BMP-2 was associated with ubiquitin-mediated degradation activated by phosphorylation of Rb via the PI3K/AKT signal pathway. In addition, the Smad signaling pathways are implicated in upregulation of CD44 protein expression by BMP-2. It was suggested that cross-talk exists between Rb and CD44 signaling pathways, as recombinant human BMP-2 (rhBMP-2) was found to regulate CD44 expression partly through Rb signals. In clinical tissues, BMP-2 was positively and negatively correlated with CD44 and Rb expression, respectively. Based on the *in vitro* and *in vivo* results, we have established an integrated mechanism by which rhBMP-2 induces EMT and stemness of breast cancer cells via the Rb and CD44 signaling pathways, which then contribute to breast cancer metastasis. These findings may be helpful for developing new strategies for the treatment and prognosis of advanced breast cancer.

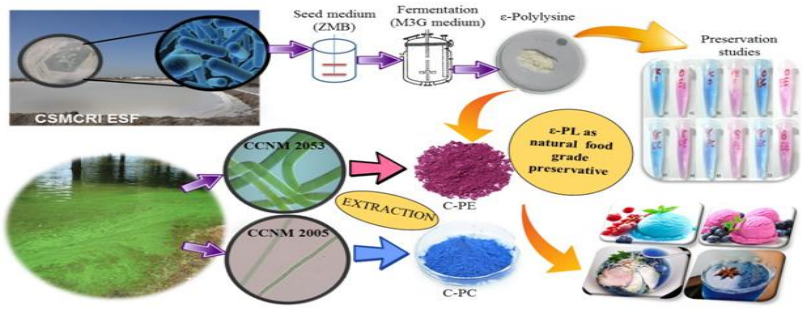
Invited Speech 14: Natural preservatives for natural products: Bacterial ε-polylysine for microalgal pigments

Speaker: Dr. Sourish Bhattacharya, Central Salt & Marine Chemicals Research Institute, India
Time: 09:50-10:30, Friday Morning, May 31, 2019
Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract
Present day need for replacing chemically synthesized pigments is gradually increasing wherein microalgae is a promising source for phycobiliproteins. However, due to its sensitivity towards light, temperature and pH, it gets easily denatured and there is a need to develop an effective natural preservative for preparing stable phycobiliproteinsfor their

possible application as colorants in food industries. Phycobiliproteins are considered to have antimicrobial, antioxidant, anti-ageing, anti-inflammatory, neuroprotective and hepatoprotective properties. Phycobiliproteins are extensively used as natural colorants in food and cosmetics, fluorescent neoglycoproteins, probes for single particle fluorescence and imaging fluorescent applications in clinical and immunological analysis. Preservation of such high value and sensitive product with chemicals possess certain side-effects to human being.

In the present study, effect of natural preservative ε-polylysine and chemical preservative citric acid on the stability of C-PC and C-PE at 4±2 ℃ was studied. Percentage loss of C-PE and C-PC content and effect of pH and fluorescence on C-PC and C-PE was studied. 0.02% ε-polylysine (w/v) was found to be optimum for storage of C-PC and C-PE at 4±2 ℃ and lesser loss of C-PC and C-PE content as compared to citric acid for its storage up to 8 days without any change in colour and pH. The amount of C-PC and C-PE left in the solution containing ε-polylysine was 90.5 and 95.24% respectively.



Invited Speech 15: Purification, characterization and evaluation of antimicrobial and anticancer activities of lectins

Speaker: Dr. Syed Rashel Kabir, University of Rajshahi, Bangladesh
Time: 10:50-11:30, Friday Morning, May 31, 2019
Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract
Cancer is one of the leading causes of death worldwide after cardiovascular diseases. Another serious problem is drug resistance. Due to severe side effects of conventional medicines and radiotherapy for cancer treatment, researchers are trying to develop alternative natural medicines to solve these problems by using various plant extracts, snake venoms, therapeutic proteins etc. Lectins are such a group of therapeutic proteins. Recently, several lectins have been isolated at our laboratory from edible plant sources (e.g. *N. nouchali*, *K. rotunda*, *P. sativum*, *S. tuberosum*, *S. lycopersicum*, *T. dioica* etc.) by using different chromatographic methods. Molecular weight, sugar specificity, physico-chemical properties, amino acid analysis and N-terminal sequence of these

lectins have been determined. BLAST software was used to find the sequence homology. Some of the purified lectins showed potent activity against pathogenic bacteria and fungi. Anticancer properties were also studied against rapidly growing Ehrlich ascites carcinoma (EAC) cells *in vitro* and *in vivo* in mice as well as against human cancer cell lines e.g. breast cancer cell line, colorectal cancer cell line, cervical cancer cell lines etc. Most of the lectins showed antiproliferative activities against EAC cells *in vitro* when incubated for 24 h. Then the lectin was injected (i.p.) in EAC-bearing Swiss albino mice at doses ranging from 0.5 to 6 mg/kg/day for five consequence days and 30 to 88% of EAC cell growth inhibition was observed. The antitumor mechanism was studied using florescence microscopy, caspase inhibitors and expression of genes/proteins. Different results were obtained for different lectins. Some lectins caused apoptosis by nuclear condensation whereas others caused cell morphological changes, fragmentation of DNA and cell blebbing. A few other showed antitumor activities without triggering apoptosis. Most of the apoptosis-causing lectins caused the expression of apoptosis-related Bcl-2, Bcl-X, p53, Bax, Bak, NFkB, Cytochrome-c, caspase-3 genes/proteins whereas most of them failed to show the activity in the presence of inhibitors of caspase-3, Caspase-9 and/or caspase-8. In most cases, after treating EAC cells with different lectins, expression of p53, Bax, Bak, NFkB, Cytochrome-c, caspase-3 and Bcl-X and Bcl-2 genes were up-regulated and downregulated, respectively. Induction of apoptosis took place mainly through the mitochondrial pathway. Arrests of different phases of the cell cycle by different lectins were also different. Although some lectins showed potent activity against pathogenic bacteria, fungi and inhibited cancer cell growth, further studies are needed to designate them as potent drugs.

Invited Speech 16: Proteomics-Centered Systems Biology Approaches to Complex Diseases

Speaker: Dr. Xusheng Wang, St. Jude Children's Research Hospital, USA
Time: 11:30-12:10, Friday Morning, May 31, 2019
Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Mass spectrometry (MS)-basedshotgun proteomics technology has been applied to identify a number of proteins underlying complex diseases. However, analysis for large-scale proteomics data remains challenging. Here, we present JUMP, a software suite for analyzing MS-based proteomic data at systems level. The JUMP suite contains many components, including MS database search engine, identification filtering, protein quantification, protein quantification, and proteogenomics. We applied the JUMP suite to analyze a large-scale tandem mass tag (TMT)-based proteomic dataset derived from Alzheimer's disease (AD) human brain cortical tissues. We identified and quantified over 10,000 proteins fromboth normal and ADhuman brain samples at the protein FDR < 0.01. We thencharacterized 173 differentially expressed (DE) proteins between AD and normal cases. We subsequently constructed

co-expression networks for DE proteins using the weighted gene correlation network analysis (WGCNA) tool. We finally integratedmulti-omics data to prioritizethe identified proteins and pathways that are involved the AD pathogenesis. In summary, oursystems-biology approaches elucidate molecular mechanismsunderlying AD.

Invited Speech 17: The development and evaluation of a 'Caring for Couples Coping with Cancer (4Cs)' programme to support couples coping with cancer as a unit

Speaker: Prof. Qiuping Li, Jiangnan University, China
Time: 08:30-09:10, Friday Morning, May 31, 2019
Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Background: As the primary informal caregiver for cancer patients, spousal caregivers are the population at a high risk of hidden morbidity. The factors impacting couples coping with cancer are complex, and within spousal caregiver-patient dyads the impact is mutual.

Aim: To develop and examine the feasibility and effects of a 'Caring for Couples Coping with Cancer "**4Cs**" Programme' to support couples coping with cancer as the unit of intervention in China.

Methods: The Medical Research Council's (MRC) framework in developing and evaluating complex interventions was adopted in developing and piloting this 'Caring for Couples Coping with Cancer "**4Cs**" Programme'.

In phase = 1 * ROMAN I of the development of the **4Cs** programme, three steps were conducted: (1) identifying evidence: evidence identified from extensive reviews of the literature and a focus group interview study; (2) identifying or developing a theory: a preliminary Live with Love Conceptual Framework (P-LLCF) was proposed, and the P-LLCF was tested using mixed methods design; and (3) modelling the process and outcomes: the **4Cs** programme was developed based on the P-LLCF.

In phase = 2 * ROMAN II of determination of feasibility/piloting: the **4Cs** programme was piloted by a pre-intervention and post-intervention study design. Outcome measures, including dyadic mediators (self-efficacy), dyadic appraisal (Cancer Related Communication Problem, CRCP), dyadic coping (Dyadic Coping Inventory, DCI), and dyadic outcomes (physical and mental health, negative

and positive emotions, and marital satisfaction), were assessed at T0 (pre-intervention) and T1 (post-intervention). Repeated measures analysis of variance and structural equation modeling (SEM) were applied in testing the outcomes of the **4Cs** program.

Results: The recruitment and retention rates were 86.7% and 78.6%, respectively. The overall effect sizes calculated in this study ranged from medium to small. The SEM of all six models resulted in convergence and showed goodness of fit to the data and variables, supportive of the constructs in the P-LLCF.

Conclusions: This study provides evidence suggesting that the **4Cs** program is acceptable, feasible, and effective in supporting cancer couples coping with the illness as dyads. Although a generally positive effect was identified in the pre- and post-intervention outcome measures, further evaluation of this **4Cs** program in a large, multisite RCT is needed to provide substantial evidence.

Engineering: Invited Session I

Invited Speech 1: Design of Building Structures to Resist Progressive Collapse

Speaker: Prof. Yanglin Gong, Lakehead University, Canada
Time: 08:30-09:10, Thursday Morning, May 30, 2019
Location: Room 2 (2 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Resisting progressive collapse has recently become a mandatory requirement for the structural design of many important buildings in North America. Progressive collapse is defined as the spread of an initial local failure from element to element, eventually resulting in the collapse of an entire structure or a disproportionately large part of it. First, this presentation will provide an overview of the design objectives and various design approaches. Next, the presentation will describe the alternate load path method under the assumed loading scenarios of a column or wall removal. Then, the presentation will introduce a nonlinear static analysis technique for steel building frameworks, with its focus on modelling beam-to-column connections. Finally, a design example will be used to illustrate the analysis and design procedures.

Invited Speech 2: Prediction on static strength of CFRP strengthened CHS column under axial compression

Speaker: Prof. Yongbo Shao, Southwest Petroleum University, China
Time: 09:10-09:50, Thursday Morning, May 30, 2019
Location: Room 2 (2 号会议室), Kunming Jin Jiang Hotel

Abstract
To predict the load carrying capacity of a circular hollow section (CHS) tube reinforced with carbon fibre reinforced polymer (CFRP), both numerical and theoretical analyses were presented. In the numerical analysis, nonlinear finite element model of CHS tube reinforced with CFRP was built, and the load carrying capacity of such tube under axial compression was obtained through finite element analysis for this model. The accuracy of the finite element result was verified through comparison with reported experimental results. Based on the stress distribution of the longitudinal and circumferential CFRPs from the finite element analysis, it is found that the circumferential CFRPs are under tension and they produce confinement to the radial deformation of the CHS tube while the longitudinal CFRPs sustain the axial compression together with the steel tube. From such observation, an equivalent section method is presented, and it is used to derive theoretical equations for predicting the load carrying capacity of CHS tubes reinforced with CFRPs. The theoretical equations consider two different reinforcing methods, i.e., the placement of the longitudinal and the circumferential CFRPs. Finally, the derived equations are evaluated through comparison against experimental results to verify their reliability.

Invited Speech 3: Complex Construction Activity Recognition System Based On Ergonomics Synergy

Speaker: Prof. Chen Wang, Huaqiao University, China
Time: 09:50-10:30, Thursday Morning, May 30, 2019
Location: Room 2 (2 号会议室), Kunming Jin Jiang Hotel

Abstract
Construction activity recognition could be improved by data fusions from multiple inertial sensors yet the optimal placement for synergy need empirical determination. This study aims to identify complex construction activities based on ergonomics synergy through a series of experiments on construction tasks. The construction workers were equipped by data acquisition units to simultaneously acquire acceleration and angular velocity data

for multiple locations. A complex construction activity recognition system was developed based on ergonomics synergy. Attempts in comparing various scenarios were to produce a better accuracy.

Invited Speech 4: Deformation Failure Mechanism and Damage Constitutive Model of Jointed Rock Masses under Cyclic Uniaxial Compression

Speaker: Prof. Feng Dai, Sichuan University, China
Time: 10:50-11:30, Thursday Afternoon, May 30, 2019
Location: Room 2 (2 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Intermittent jointed rocks, widely existing in many mining and civil engineering structures, are quite susceptible to cyclic loading. Understanding the fatigue mechanism of jointed rocks is vital to the rational design and the long-term stability analysis of rock structures. In this keynote, we systematically reported our recent experimental, numerical and theoretical investigations in this regard. First, the fatigue mechanical properties of jointed rock models under different cyclic conditions are experimentally investigated, considering four loading frequencies, four maximum stresses, and four amplitudes. Under lower loading frequency or higher maximum stress and amplitude, the jointed specimen is characterized by higher fatigue deformation moduli and higher dissipated hysteresis energy, resulting in higher cumulative damage and lower fatigue life. Second, the influences of typical joint geometry (i.e., dip angle, persistency, density and spacing) on the fatigue failure behavior of jointed rock models are estimated, and the fatigue progressive failure processes of the jointed model are numerically revealed. Two final failure modes are observed in the present study, i.e., tensile splitting failure and tensile-shear mixed failure. As the joint geometry parameter increases, the failure mode of jointed rocks gradually change from tensile splitting failure to mixed failure. Third, a damage constitutive model is proposed to describe the deformation and strength characteristics of intermittent jointed rocks under cyclic uniaxial compression. Our new model comprehensively reflects the coupled damage induced by micro-flaws and macro-joints, which is able to reliably reproduce the hysteretic stress-strain curves and the cumulative fatigue plastic deformation of rock materials under cyclic loading.

Invited Speech 5: Deformation Failure Mechanism and Damage Constitutive Model of Jointed Rock Masses under Cyclic Uniaxial Compression

Speaker: Prof. Zhushan Shao, Xi'an University of Architecture & Technology, China
Time: 11:30-12:10, Thursday Afternoon, May 30, 2019
Location: Room 2 (2 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract
The interest in microwave processing of materials especially facilitating breakage is highlighted recently due to its potential for decreasing energy consumption and improving process efficiency. Fundamentals and industrial applications of microwave heating are introduced in the lecture. Multi-field theory of microwave-assisted hard rock fragmentation is illuminated. Results of numerical simulation based on two phase model are presented to clarify the temperature gradient, stress and strain states of minerals under microwave irradiation. Damage evaluation of hard rock is quantified according to the crack propagation behavior. Experimental results of microwave heating pyrite-calcite mineral are shown to validate the theoretical model. The research has the significance for the industrialization of microwave-assisted solid breakage.

Engineering: Invited Session II

Invited Speech 6: Performance of Light-Frame Residential Wood Structures under Combined Wind and Flood Hazards

Speaker: Prof. Nur Yazdani, University of Texas at Arlington, USA
Time: 14:00-14:40, Thursday Afternoon, May 30, 2019
Location: Room 2 (2 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract
Although simultaneous flood and wind events may cause catastrophic damage in areas outside the special flood hazard areas, there are no current building code requirements for light frame wooden structures (LWFS) to be elevated and/or designed for the combined loads. This study numerically investigated the performance of typical elevated and a non-elevated LFWS buildings in 100- and 500-year flood plains,respectively, against global failure due to combined flood and wind forces. Factors such as the direction of lateral loads, effect of buoyancy and flood level difference between the building interior and exterior were considered. The adequacy of foundation anchor bolts spacing provisions from the International Building Code (IBC)

and Bureau of Recovery and Mitigation (BRM) were investigated. For the non-elevated type building, it was found out that a non-engineered building complying only with the minimum requirements set by building codes is likely to fail locally at the wall-foundation connection before any global failure. In case of elevated buildings, two-story elevated buildings are safer against overturning, sliding and uplifting failures, as compared to one-story counterparts.

Invited Speech 7: Criteria of effective drone use supporting disaster management

Speaker: Dr. Agoston Restas, National University of Public Service, Budapest, Hungary
Time: 14:40-15:20, Thursday Afternoon, May 30, 2019
Location: Room 2 (2 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract
Introduction: Drone applications become more and more common in our life meaning that in case of disaster management would not be a useless to investigate its effectiveness. Depending on different conditions, in expert view drone application can be effective or not effective. Since disaster managers suffer almost always from the lack of resources it is necessary to optimize them. Therefore, it is useful to study that at which assumptions drone applications are able to satisfy the requirements of the effective use.

Methodology: This study based mostly on author's own practices, collecting and analysing the experiences however in some cases economic analysis and logical conclusions also were used as well as picture analysis and simply mathematical phenomena. Of course, relevant literatures were also used.

Results: Author found that in some cases like managing forest fires we can measure easily both the professional and the economical effectiveness of the drone applications, however in other cases like intervention at hazardous materials or managing flood only the professional one can be measured clearly. Moreover, in some special events like nuclear accidents there is no other option for the safe intervention than using unmanned systems like drone therefore measuring its economic effectiveness is not relevant.

Invited Speech 8: TRAFFIC ISSUES; IOT FOR ANALYSING TRAFFIC AND DENSITY PATTERNS BY UNIQUE IDENTIFICATION WITH RFID TAGS

Speaker: Prof. Sreenivasa rao Ijjada, GITAM University, India
Time: 15:20-16:00, Thursday Afternoon, May 30, 2019
Location: Room 2 (2 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

In this Smart world, the term IOT plays a big role in the digitisation, smart city and intelligent transportation systems. In the world, with the IOT, many cities, across the countries transform into smart cities by having intelligent traffic and parking systems, smart malls and restaurants, smart buildings with intelligent home security systems, smart streetlight systems with renewable electricity generation facilities, intelligent transportation systems and intelligent garbage monitor systems. The term smart needs efficient integration, in depth insight, service innovation, security reliability and energy saving methods

In smart city concept, IOT based intelligent systems are to be designed. In intelligent traffic and parking systems, the traffic density in different routes can be made to analyze and the same can be alarmed to the vehicular. In many traffic congested areas the parking systems are need to be more intelligent to park the vehicles. The malls and the restaurants should be housed intelligent systems which make less waiting time and cashless pays. The buildings are able to have a more smart security facility which makes them more proximity and virtually visible to the owner. Intelligence is need to added to the streetlights to on and off automatically with the need and able to work with the renewable and manmade energies. The electricity can be generated with solar energy, walkways and runways. The city sanitation must hold best intelligent systems to provide alarms when they are saturated and robotic lift systems. All this made the city smarter and provides all comforts for human life.

In this paper, intelligent traffic system is addressed to cut down the traffic issues. Unique Identification is quite crucial in many regards. Leveraging the capabilities of this fact, many sophisticated systems can be designed, keeping in mind the requirements of the users.

This proposes a system using which a reliable IOT network of devices can be established to use a unique identifier, RFID tag, to gather data and map out various demographics of an area by analyzing the traffic patterns. The propose system architecture, along with the structural outlay, the technical specifications which might make the system reliable at the most basic level, and certain protocols which can be followed. As the prime identifier, the RFID tag identity is sent as a response to the SPoC beacon, which is then captured, and sent over to a central data storage facility for further perusal.

With reference to the past literature, a collection of data has been shown to allow for successful

determination of the density of population in the area, along with the vehicular traffic patterns. As an alternative, the use of mobile phones as a unique identifier is also looked at, as active RFID usage can become very much expensive in some scenarios. Keeping in mind the privacy concerns, a simple security algorithm to be implemented at the SPoCs is proposed. The fiscal feasibility of the work is also discussed upon. As a simple implementation, we design of a passive RFID tag identifier which recognizes the individual as the card is scanned, and sends a message onto a predefined number.

Part III Technical Sessions

Invited Session I: Biomedical Science

Session Chair: TBD
Room 1 (1 号会议室), 3rd Floor Thursday Morning, May 30, 2019

ID	Paper Title	Speaker	Affiliation
Invited 08:30-09:10	Modulation of Macrophages in Murine Acute Lung Injury	Prof. Zhilong Jiang	Zhongshan Hospital, Fudan Universit, China
Invited 09:10-09:50	Development of cancer stem cell vaccine in an adjuvant setting	Dr. Qiao Li	University of Michigan, USA
Invited 09:50-10:30	Nanomaterials for ImagingGuided Two-photon Phototherapy	Prof. Qing-Hua Xu	National University of Singapore, Singapore
10:30-10:45	**Coffee Break**		
Invited 10:45-11:25	Development of Tumor-Targeting Nanoagents for Photo-Chemo- Therapy of Breast Cancer	Prof. Yu-Hsiang Lee	National Central University
Invited 11:25-12:05	Bio-responsive nanoparticles for systemic siRNA delivery and effective cancer therapy	Prof. Xiaoding Xu	Sun Yat-Sen University, China
Invited 12:05-12:45	Free-Blockage Mesoporous Anticancer Nanoparticles Based on Wetting Transformation of Nanopores	Prof. Yongqiang Wen	University of Science and Technology Beijing

Biomedical Science: Invited Session II

Session Chair: TBD
Room 1 (1 号会议室), 3rd Floor Thursday Afternoon, May 30, 2019

ID	Paper Title	Speaker	Affiliation
Invited 14:00-14:40	ImmunoPET and Near-Infrared Fluorescence Imaging of Pancreatic Cancer with a Dual-Labeled Bispecific Antibody Fragment	Prof. Haiming Luo	Huazhong University of Science and Technology (HUST), China
Invited 14:40-15:20	Nanomicelles codelivery of herbal flavonoids and chemotherapeutics to drug-resistant breast cancer cell	Prof. Yan Xie	Shanghai University of Traditional Chinese Medicine, China

Invited 15:20-16:00	Nuclear Spin Catalysis in Cell Biomolecutar Nanoreactors: Premises and Promises	Dr. Vitaly K. Koltover	Institute of Problems of Chemical Physics, Russia
16:00-16:20	**Coffee Break**		
Invited 16:20-17:00	Vitamin K2 Promotes Glycolysis in Bladder Carcinoma Cells that Leads to AMPK-dependent Autophagic Cell Death	Prof. Ling Hong	Huazhong University of Science and Technology, China
Invited 17:00-17:40	Role of non-coding RNAs in the pathogenesis of lung diseases	Prof. Lin Liu	Oklahoma State University, USA
Oral 17:40-17:55	Testing for Drug Abuse in Pathology Consultation Practice	Dariusz Galkowski	Rutgers- Robert Wood Johnson Medical School
Oral 17:55-18:10	Construct Cyan Fluorescence by De Novo Tripeptides: An In Vitro Mutation Study on the Role of Single Amino Acid Residues and Their Sequence	Feng Zhang	Inner Mongolia Agricultural University
Poster	Protective effects of ceria nanoparticles (cerium oxide nanoparticles) on X-ray irradiation-induced damage to the immune system and its antioxidant function	Shao-yan Si	Medical Center of PLA Strategic Support Force

Invited Session III: Protein and Proteomics

Session Chair: Dr. Xusheng Wang, St. Jude Children's Research Hospital, USA

Room 1 (1 号会议室), 3rd Floor Friday Morning, May 31, 2019

ID	Paper Title	Speaker	Affiliation
Invited 08:30-9:10	Diversity of c-di-GMP-binding proteins and mechanisms	Prof. Shan-Ho Chou	National Chung Hsing University, Chinese Taipei
Invited 09:10-09:50	BMP-2 induces EMT and breast cancer stemness through Rb and CD44	Prof. Ju Wang	Jinan University, China
Invited 09:50-10:30	Natural preservatives for natural products: Bacterial ε-polylysine for microalgal pigments	Dr. Sourish Bhattacharya	Central Salt & Marine Chemicals Research Institute, India
10:30-10:50	**Coffee Break**		

Invited 10:50-11:30	Purification, characterization and evaluation of antimicrobial and anticancer activities of lectins	Dr. Syed Rashel Kabir	University of Rajshahi, Bangladesh
Invited 11:30-12:10	Proteomics-Centered Systems Biology Approaches to Complex Diseases	Dr. Xusheng Wang	St. Jude Children's Research Hospital, USA
Oral 12:10-12:25	Intrinsic protease-like activity of Cu2O/SBA-3	Lingli Li	Yunnan University
Poster	MOFzyme: Enzyme mimics of Fe/Fe-MIL-101 and FJU-21	Lingli Li	Yunnan University

Invited &Oral Session: Nursing and Healthcare

Session Chair: TBD

Room 1 (1 号会议室), 3rd Floor Thursday Morning, May 30, 2019

ID	Paper Title	Speaker	Affiliation
Invited 08:30-09:10	The development and evaluation of a 'Caring for Couples Coping with Cancer (4Cs)' programme to support couples coping with cancer as a unit	Prof. Qiuping Li	Jiangnan University, China
Oral 09:10-09:25	Development of an index for drop-foot severity of DPN patients	Albert Chong	University of Southern Queensland
Oral 09:25-09:40	Foot loading pattern variations between normal weight, overweight, and obese adults aged 24 to 50 years	Lay Tan	University of Southern Queensland
Oral 09:40-09:55	Prediction of Perceived Stress of Hong Kong Nursing Students with Coping Behaviors over Clinical Practicum: A Cross-Sectional Study	Anson Tang	Tung Wah College
Oral 09:55-10:10	The perceptions for Hong Kong male students refusing HPV vaccination: An exploratory study	KEUNG SUM CHAN	TUNG WAH COLLEGE
10:10-10:25	**Coffee Break**		
Oral 10:25-10:40	The stressors and psychological well-being of Lesbian, Gay and Bisexual among Chinese adults in Hong Kong	Winnie LS Cheng	Tung Wah College

Oral **10:40-10:55**	Testing for Drug Abuse in Pathology Consultation Practice	Dariusz Galkowski	Rutgers- Robert Wood Johnson Medical School
Oral **10:55-11:10**	Diabetes Self-care Activities and Glycaemic Control among Adults with type 2 diabetes in Sri Lanka: A cross-sectional study	Thamara Amarasekara	University of Sri Jayewardenepura, Sri Lanka
Oral **11:10-11:25**	Cognitive Behaviour Therapy for Heart Failure Patients with Depression	Rasika Jayasekara	University of South Australia
Oral **11:25-11:40**	Comparative nursing study of Patients undergoing coronary intervention therapy in different ways	Qilian He	Qinghai University

Engineering: Invited Session I

Session Chair: TBD

Room 2 (2 号会议室), 3rd Floor Thursday Morning, May 30, 2019

ID	Paper Title	Speaker	Affiliation
Invited **08:30-09:10**	Design of Building Structures to Resist Progressive Collapse	Prof. Yanglin Gong	Lakehead University, Canada
Invited **09:10-09:50**	Prediction on static strength of CFRP strengthened CHS column under axial compression	Prof. Yongbo Shao	Southwest Petroleum University, China
Invited **09:50-10:30**	Complex Construction Activity Recognition System Based On Ergonomics Synergy	Prof. Chen Wang	Huaqiao University, China
10:30-10:50	**Coffee Break**		
Invited **10:50-11:30**	Deformation Failure Mechanism and Damage Constitutive Model of Jointed Rock Masses under Cyclic Uniaxial Compression	Prof. Feng Dai	Sichuan University, China
Invited **11:30-12:10**	Heating process and damage evaluation of hard rock under microwave irradiation	Prof. Zhushan Shao	Xi'an University of Architecture & Technology

Engineering: Invited Session II

Session Chair: TBD

Room 2 (2 号会议室), 3rd Floor Thursday Afternoon, May 30, 2019

ID	Paper Title	Speaker	Affiliation
Invited 14:00-14:40	Performance of Light-Frame Residential Wood Structures under Combined Wind and Flood Hazards	Prof. Nur Yazdani	University of Texas at Arlington, USA
Invited 14:40-15:20	Criteria of effective drone use supporting disaster management	Dr. Agoston Restas	National University of Public Service, Budapest, Hungary
Invited 15:20-16:00	TRAFFIC ISSUES; IOT FOR ANALYSING TRAFFIC AND DENSITY PATTERNS BY UNIQUE IDENTIFICATION WITH RFID TAGS	Prof. Sreenivasa rao Ijjada	GITAM University, India
Oral 16:00-16:20	Evaluation Method for Tunneling Stability of TBM Cutterhead System	Zhaohui Xu	Dalian University of Technology
Oral 16:20-16:40	Modeling Off-shore Wind Turbine Construction Project Subject to Impact of Wind Uncertainty	Sy-Jye Guo	National Taiwan University
Oral 16:40-17:00	Comparative Study Using the 2-Hydrological Models with the Global Weather in a Small Watershed, a Case Study in the Upper Tha Chin River Basin, Thailand	Sombat Chuenchooklin	Naresuan University
Oral 17:00-17:20	Research on the supervision and regulation mode of production safety in China, Germany and Canada	Yixu Gong	Beijing Academy of Safety Science and Technology
Oral 17:20-17:40	Research on the Construction of Fire Safety Management System of Urban Comprehensive Community in Beijing	Le Zhang	Beijing Academy of Safety Science and Technology

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
- Invited Speech: 30-40 Minutes of Presentation

Part VI　Hotel Information

About Hotel

Kunming Jin Jiang Hotel (昆明锦江大酒店) is recognized as one of the most distinguished deluxe hotels in Kunming, an area rich with Yunnan minority culture and warm hospitality. Situated in the heart of the commercial and trade center, the hotel is within walking distance of Jewelry City and both the Kunming International Trade Center and Foreign Trade Center. There are 320 well-appointed guestrooms, seven deluxe restaurants and conference and banquet facilities. With its high-quality service standard, the hotel is ideal for both business and leisure travelers alike.

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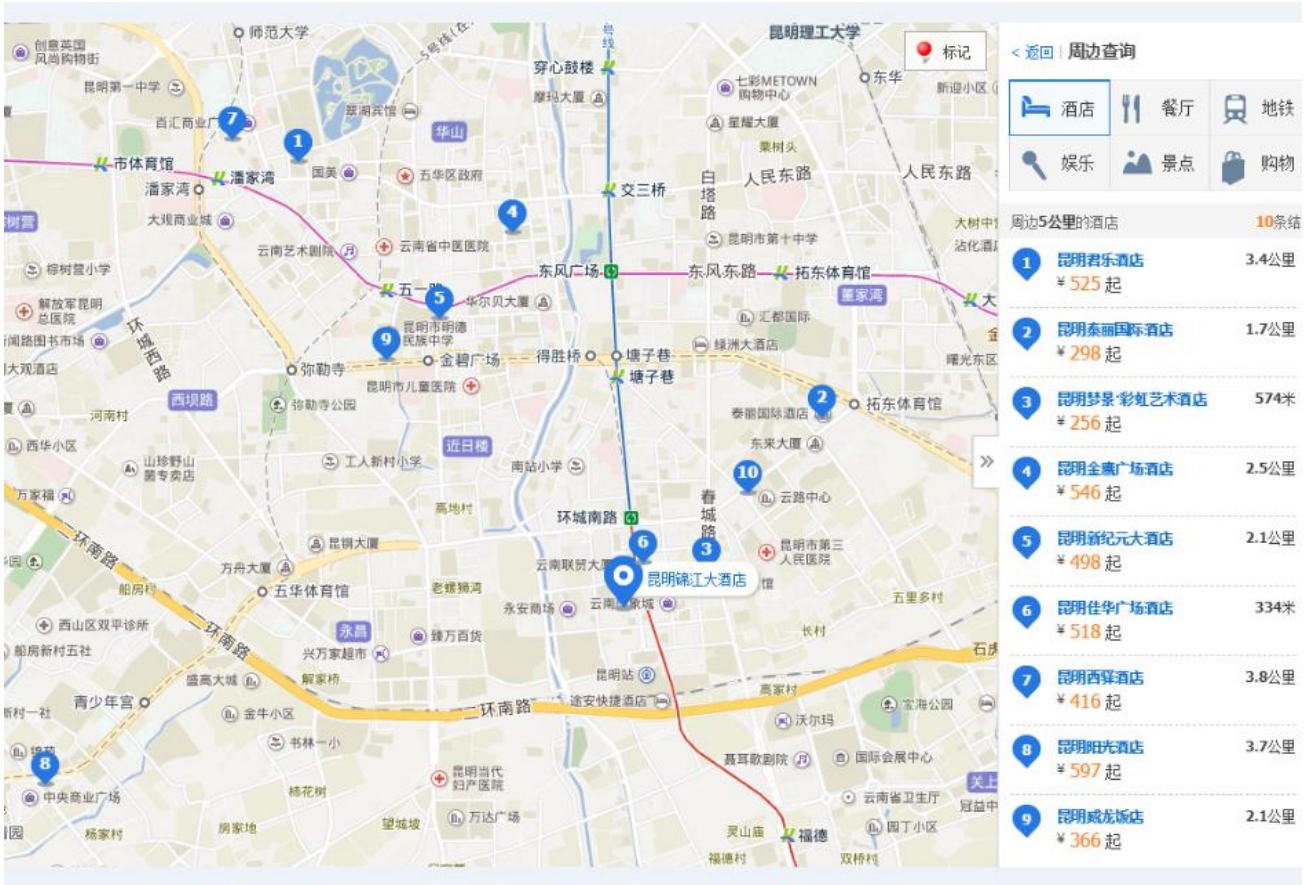

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