# PCM 2014 CONFERENCE PROGRAM

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## Part I Conference Schedule

Time	Activity	Location
May 26 14:00-18:00	Desistantian	Den Desifie Ninche Hetel
May 27 08:00-12:00		Pan Pacific Ningbo Hoter

## May 26 ~ May 28, 2014

## Tuesday Morning, May 27

Time	Activity	Location
08.00 11.45	Attending the 2014 International New Material	Ningbo International Convention and
00.00-11.45	and New Equipment Exposition	Exhibition Center

### Tuesday Noon, May 27

12:00-13:00	Lunch	Location: 3 <sup>rd</sup> floor	, Tianyi Hall, P	Pan Pacific Ningbo Hotel
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### Tuesday Afternoon, May 27

Time	Activity	Location
	Oral Presentation	3 <sup>rd</sup> floor, Pan Pacific Hall V, Pan
14:30-17:30		Pacific Ningbo Hotel
	Poster Presentation	3 <sup>rd</sup> floor, Pan Pacific Hall IV, Pan
		Pacific Ningbo Hotel

## Tuesday Evening, May 27

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### Wednesday Morning, May 28

Time	Activity	Location: 3 <sup>rd</sup> floor, Tianyi Hall, Pan Pacific Ningbo Hotel
08:30-08:45	Opening Ceremony	
08:45-09:30	Keynote Speech 1: <i>Mechan</i> <i>ings, Prof. Esteban Broitm</i>	nical and Tribological Aspects of Nanocomposite Coat- an
09:30-10:15	Keynote Speech 2: <i>Multi-f</i> <i>Prof. Bin Zhu</i>	functional nanocomposites for new generation fuel cells,
10:15-10:30	Coffee Break	

10.20 11.15	Keynote Speech 3: Injection of "Liquid Wood": Samples Microstructure and Prop-
10.30-11.15	erties, Prof. Dumitru Nedelcu
	Keynote Speech 4: Some High Coordination Compounds of Lanthanides (Iii) De-
11:15-12:00	rived from Schiff Bases Derived from 4-Aminoantipyrine and Their Applications,
	Prof. R. K. Agarwal

Wednesday Noon, May 28

12:00-13:00	Lunch	Location: 3 <sup>rd</sup> floor, Ballroom I, Pan Pacific Ningbo Hotel
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## Wednesday Afternoon, May 28

Time	Activity Location: 3 <sup>rd</sup> floor, Tianyi Hall, Pan Pacific Ningbo Hotel
14:30-15:15	Keynote Speech 5: New Polymer Materials for the Potential of Optical, Electronic and Green Energy Applications, Prof. Der-Jang Liaw
15:15-16:00	Keynote Speech 6: <i>Design of High Thermal Conductive Polymers, Prof. Masa-aki</i> <i>Kakimoto</i>
16:00-16:15	Coffee Break
16:15-17:00	Keynote Speech 7: Highly Efficient Polymer Solar Cells, Prof. Ziyi Ge

## Wednesday Evening, May 28

18:00-19:00	Dinner	Location: 3 <sup>rd</sup> floor, Ballroom I, Pan Pad	cific Ningbo Hotel
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## Thursday, May 29

07:00	Gathering at the lobby of Pan Pacific Ningbo Hotel
07:15-19:00	One day Mount Putuo travel

# Part II Oral Presentation

Devices Provided by the Conference Organizer:

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

Materials Provided by the Oral Presenters:

• PowerPoint

Duration of each Presentation (Tentatively):

• Regular Oral Session: 15 Minutes of Presentation, 5 Minutes of Q&A

## Time

• 14:30-17:30, Tuesday Afternoon, May 27

## Location

• 3<sup>rd</sup> floor, Pan Pacific Hall V, Pan Pacific Ningbo Hotel

Paper ID	Paper Title	Author
PCM1095	Carboxy terminated rubber based on natural rubber grafted	P Klinpituksa
	with acid anhydrides and its adhesion properties	
PCM1340	Molecular Engineering of Dithienothiophene-Based Dyes for	Tae-Hyuk
	Dye-Sensitized Solar Cells	Kwon
PCM1161	The potential for irrigation water saving using polymers in the	A.S.Elamin
	Kingdom of Saudi Arabia	
PCM1254	An experimental investigation on the three-point bending be-	Azzam
	havior of composite laminate.	
PCM1156	The stress intensity factor of the crack on the interface be-	Li Shimin
	tween homogeneous material and FGMs	
PCM1263	Soil C, N and P stoichiometry of shrub communities in	Y.Y. Zhao
	chenier wetlands in Yellow River delta, China	
PCM1330	Mechanical performance of fly-ash-based green geopolymer	Y. C. Choi
	composites subjected to elevated temperatures	
PCM1338	Photo-anodic polymerization of pyrrole on nanoclustered	Fu-fang Zhou
	TiO2 from hydrothermal one-step on pure Ti	
PCM1344	Photocatalytic degradation of aniline using supported TiO	ZhouYun-long
	2/charcoal composite	

PCM1017	Microscopic Observation on the Chemical and Cyclic Degra-	C.W. Kwak
	dation of Geosynthetic-Soil Interface	
PCM1267	Research on Scaling and Wax Deposit Mechanisms of FRP	Kun Huang
	Oil Pipelines	
PCM1397	Synthesis of poly (methylmethacry-	Ambrish Singha
	late-co-N-vinyl-2-pyrrolidone) polymer	
PCM1405	Effect of Functionalized MWCNTs on the Mechanical Prop-	S.C.HER
	erties of Polymer Matrices	
PCM1430	A Study on the Physical and Chemical Properties of Dry Bot-	Hun-Il Park
	tom Ashes According to Particle Size Separation for the De-	
	velopment of Light-Weight Artificial Soil	
PCM1390	Temperature Effect on Optical and Electrical Properties of	S.C.HER
	ZnO Films	
PCM1282	In situ synthesis of PEDOT coating on PI with attached oxi-	Jianxiong Li
	dants in EDOT solution and selective copper metallization of	
	PI with 172 nm VUV and electroplating	
PCM1274	The equivalent moduli of the Carcass layer in flexible pipes	Wei Wang

NOTE: If you want to make an oral presentation but your paper ID is not included in the list, please contact the orginazing committee or the session chair to arrange it.

## Part III Poster Presentation

Materials Provided by the Conference Organizer:

- X Racks & Base Fabric Canvases (60cm×160cm, see the figure below)
- Adhesive Tapes or Clamps

Materials Provided by the Presenters:

Home-made Posters

Requirement for the Posters:

- Material: not limited, can be posted on the Canvases
- Size: smaller than 60cm×160cm
- Content: for demonstration of the presenter's paper

## Requirement for the Presenters:

• Stand beside his (her) Poster through the Session, and



discuss with the readers about his (her) paper.

## Time

• 14:30-17:30 Tuesday Afternoon, May 27

## Location

• 3<sup>rd</sup> floor, Pan Pacific Hall IV, Pan Pacific Ningbo Hotel

Paper ID	Paper Title	Author
PCM1025	Vibrational and chemical kinetics in plasma of CO containing gases	G.M.Grigorian
PCM1037	Study of the thermal treatment of SiO2 aggregate	N Tahiri
PCM1069	3-D loaded scaffolds obtained by supercritical CO2 assisted process	S Cardea
PCM1340	Molecular Engineering of Dithienothiophene-Based Dyes for Dye-Sensitized Solar Cells	JeongSoo Kim
PCM1310	A detailed bond stretch model of thermal decomposition	Jia Fu
PCM1098	Thermodynamic and kinetic characteristics of nitrogen hydrates respond to a thermo-analytical technique	Qiang Chen
PCM1337	Influence of External Forces on the Mechanical Characteristics of the a-IGZO and Graphene Based Flexible Display	HJ. Kim
PCM1198	A kind of hydrophobic modified nanosized crosslinked polymer microspheres	Hailing Chen
PCM1380	A new Molding Method of Polymethylmethacrylate (PMMA) Microstructures via Laser Melting	W. S. Tan
PCM1077	Effect of Ultrasounds Application on Extrudate Output, Flow Pressure, Temperature and Viscosity Measured online by Means of a New Monitored Extrusion Head Design	Manuel Muniesa
PCM1080	Study of The Biodisintegration of a Painted Bioplastic Material Waste	Carlos Javierre
PCM1046	A quantum chemical of the frontier molecular orbit of 4-amino-cobalt phthalocyanine	Juanqing Xue
PCM1072	An experimental investigation on the low-velocity impact behav- ior of 3-D five-directional braided composites	Shi Yan
PCM1091	Analysis of Fracture Mechanics of Glued Laminated Lumber Composed of China's Plantation Wood	Zhong-feng Zhang
PCM1043	Analysis of mechanics properties on GFRP-confined concrete short columns	Juan Wang
PCM1125	Research on Bamboo Charcoal Bonded Grinding Wheel and Its Mechanical Properties	Wei Li

PCM1169	High visible response of vertical TiO2 nanoclusters-CdSe linked by cystein	Fu_fang Zhou
PCM1216	Strengthening and Toughening Mechanisms for Polypropyl- ene/Glass Fiber Composite Foams under Three-Phase Coexist- ence	W. Gong
PCM1227	A study on application of Al-doped SiC high emissivity powder material based on infrared radiating coating	Jun Liu
PCM1140	One-Pot Synthesis of Polyaniline Doped with Transition Metal Ions Using H2O2 as Oxidant	Q Huang
PCM1152	Study of Coupling Agent Modification of Cotton Stalk Bast Fi- bers Reinforced Polylactic Acid Flame-retardant Composites	Bo Wang
PCM1247	Analysis of Molecular Characteristics of Wood Extractives from Pinus Massoniana Trees	Zhong-feng Zhang
PCM1124	Analysis of the usage of polymer building materials in China	Hai-yang Ren
PCM1266	Analytical solutions of dynamic extension problem of mode III semi-infinite crack subjected to moving increasing loads *	Nian-chun Lu
PCM1097	Atomization Characteristics of Gas-Liquid Two Phase Rotation Flow Spray Nozzle	Shi Ling
PCM1158	Brief Discussion on Green Building Materials	Jia-wei Cai
PCM1137	Controlled grafting of cellulose by atom transfer radical polymer- ization of BMA	Halidan Maimaiti
PCM1079	Cytocompatibility evaluation of hydroxyapatite coating on tita- nium surfaces by pulsed electrochemical deposition	Cunping Liu
PCM1200	Development of a Rapid Tooling Material Formula Based on an Aluminum Filled Epoxy Resin	Guang Yang
PCM1293	Development of Rapid Electrochemical Phosphating at Room Temperature	L. Ma
PCM1109	Dynamic Property and Constitutive Model of PVB Material at High Strain Rates	Zhonggao Yang
PCM1427	Effect of preparation conditions of sewage sludge based granular activated carbon on methylene blue adsorption	L.H. Liu
PCM1106	Effect of sulfur content on crystallization characteristics and me- chanical properties of trans-polyisoprene	Fu Wen
PCM1016	Effect of sintering temperature on the electrical conductivity, hardness and friction properties of Cu/MgB2 composites	Qing Yang
PCM1018	Effects of Compatibility of Poly(L-lactic-acid) and Thermoplastic Polyurethane on Mechanical Property of blend fibre	Danying Zuo
PCM1190	Experiment study on adsorption of surfactant on sandstone under vibro-energy	Jing Liu
PCM1048	Experimental and theoretical study on the seismic performance of corroded RC circular columns strengthened with hybrid fiber re-inforced polymers	Jian-hui Li
PCM1298	Experimental Study of a Novel Polycarboxylate-based Superplas- ticizer for Concrete	Fankui Zeng

PCM1034	Experimental study on CFRP strengthened pre-cracked box girders with corrugated steel web	Jiang-feng Dong
PCM1179	Hydrogeochemistry and Netpath Modeling of Groundwater in Taklimakan Desert, China	J.L. Fan
PCM1117	Hyperelastic behaviors of two rubber materials under quasi-static and dynamic compressive loadings: testing, modeling and ap- plication	Yongjian Mao
PCM1001	Investigation of the mechanical behaviour of titanium ox- ide-coated vessel stents	Zhonghua Min
PCM1374	Investigation the interface reaction between Ba- Co0.7Fe0.2Nb0.1O3-δ membrane and Ni-based catalyst	ZhibinYang
PCM1343	Low-temperature baroplastic processing of graphene-based poly- mer composites by pressure-induced flow	Wei Tang
PCM1059	Mechanical Property and Fatigue Failure of the Bamboo-based Composites	Fengpeng Yang
PCM1356	Microbial Community Analysis in the Two-Phase Anaerobic Re- actor by PCR-TGGE	Fang Junhua
PCM1273	Miscibility and isothermal crystallization behavior of poly- (L-lactide-co-glycolide)/ poly (ρ-dioxanone) blends	Xiaojin Zhang
PCM1208	Molecular dynamics simulation of mechanical properties for PVP/PVA hydrogel	Y. Wang
PCM1096	Molecular mechanism of nano-hydroxyapatite surface changes from hydrophilic to hydrophobic	Xu Ran
PCM1213	Ni/TiO2 Catalysts supported with Al2O3 over CO2 Reforming	H. Sun
PCM1358	Optimization of CdS/TiO2 Nanotube-Array Composite Photo- catalysts Prepared by Electrodeposition for Photocatalytic Activi- ty under UV-visible Light Irradiation	C.T. Wang
PCM1283	Parametric study on Heat Transfer for Tow Placement Process of Thermoplastic Composite	Zhongliang Cao
PCM1126	Percolation evolution and characteristics in the formation process of pores for porous graphite	Qili Wang
PCM1061	Physical Simulation Test for Developing Composite Materials of Non-hydrophilic Aquifuge in Water-preserved Mining	Liqiang Ma
PCM1382	Preparation and performance evaluation of a novel high durability epoxy asphalt concrete for bridge deck pavements	Sang Luo
PCM1275	Preparation and Properties of Graphene Oxide Modified Nano- composite Hydrogels	Sihang Liu
PCM1039	Preparation and properties of porous composite of hema- tite/magnetite/carbon with eucalyptus wood biotemplate	ZQ Zhu
PCM1239	Preparation and Their Photoelectricity Property, Photocatalytic Activity of Alkaline-earth Metals Modified TiO2 Nanoparticles	Zong-Yi Min
PCM1090	Process Parameter Optimization of Plasma Sprayed Nanostruc- tured Al2O3-13%TiO2 Coating Based on Genetic Algorithm	Bin Yang

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PCM1226	Rapid Determination of Trace Zinc in Milk Powder by Ethyl Rhodamine B Spectrophotometry	Wenli Dong
PCM1052	Research on Monomer Reactivity Ratios for AM and 2-EHA in Free Radical Copolymerization by Elemental Analysis Method	Tian Ming
PCM1174	Research on the characteristics of temperature field of asphalt pavement in seasonal frozen region	Jiangang Qiao
PCM1084	Research on the Corrosion Mechanism of 12Cr2NiWVA Cylinder Liners	Peng Zhiling
PCM1155	Single Electron Transfer Living Radical Polymerization via a New Initiator	Xiongxiong Bai
PCM1132	Spin-glass behavior and Magnetic properties of Multi-metallic Prussian blue compound Co0.25Mn1.25[Fe(CN)6]·5.9H2O	Qing Lin
PCM1269	Study of n-Heptane Hydroisomerization over HPMo-Ni/Ce-MCM-48 Catalysts	Yanhua Suo
PCM1144	Study on dynamic parameters of jet electrodeposition for Ni-P alloy	Y. Wang
PCM1243	Study on the Fire Resistance of Three-phase Foam with Modified Hollow Glass Microspheres	Tang Baohua
PCM1248	Study on the Sustained Release and in Vitro Efficacy Evaluation of Functionalized Carbon Nanotubes Chitosan Thermo-sensitive Gel	Xiaojuan Li
PCM1063	Synthesis and Application of Amino-carboxylic-based High Per- formance Superplasticizer for Concrete	Xu Chen
PCM1141	Synthesis of a novel carbon fiber dispersion and its effect on the surface properties of carbon fiber	Bo Wu
PCM1259	Synthesis, characterization and photocatalysis of mesoporous TiO2	Xiangchao Zhang
PCM1093	Tailoring Pore Shapes of Catalysts for Diesel Hydrodesulfuriza- tion	R. Guo
PCM1272	The application of Biomedical polymer material Hydroxy propyl methyl cellulose (HPMC) in pharmaceutical preparations	Wu Huichao
PCM1316	The effect of starch nanocrystal on the properties of carbon black-nature rubber composites	Y.J.S. Gao
PCM1185	The electrical properties of a composite Polyani- line/SuperconductingPolyani- Ceramic:PANI/Neodymium-Barium-Copper OxideCeramic	J.P. Fernandes
PCM1057	The luminescence properties of Dy3+-doped CaLaP3O10 white-light phosphors under VUV excitation	LI Zhang
PCM1167	The manufacture of Spherical Titanium Alloy Powder in Plasma	Wei Huang
PCM1066	The preliminary analysis of machining quality of Nickel-base superalloy machined by short electric arc	Liu Hongsheng
PCM1231	The preparation and hydrogen-sensitive mechanism of plati- num-doped tungsten trioxide films	Zelun Li

PCM1353	The Preparation of Novel TiO2-g-PAN Nanocomposites and Their	Liqun Ma
DCD (1101	Applications as Ultraviolet Anti-aging Agents	<b>x x x x</b>
PCM1181	The research of Co/N/Er3+: Y3AI5O12 /11O2 in sonocatalytic	L. Wang
	degradation of dyeing wastewater	o: <b>7</b>
PCM1442	AM/AMPS/NVP terpolymeric microspheres by orthogonal ex-	Qian Zhao
	periments	
PCM1488	Investigation on the reaction mechanism for selective oxidation of	Xingdong Yao
	anethole to anisaldehyde by hydrogen peroxide in the presence of	
	ferric vanadate	
PCM1520	Preparation of amorphous coatings of AlFeCoNiCuZrV alloy by	J. Zhang
	DCMS method	
PCM1317	The Effect of Ultraviolet Light on the "Liquid Wood"	Nedelcu Du-
		mitrul
PCM1131	Magnetic properties of Manganese-iron Multi-metal cyanide	Yun Hei
	compound Ni1.15Mn0.35[Fe(CN)6]•6H2O	
PCM1173	The electromagnetic wave absorbing properties of double-layer	Zhang Yuefang
	cement composite and theory analysis	
PCM1189	The Experimental Study on the Oil Well Breakdown Pressure in	Fei-peng Wu
	the Blasting Force Loading Condition	
PCM1211	Pressure and temperature bearing capacities of Fuzzy-ball fluid	C. Yang
PCM1255	Mechanical Property of Polymer Rubber Materials Based on a	J.B.Sang
	New Constitutive Model	-
PCM1434	Preparation and Characterization of the Flexible Polypyrrole Film	Feng Chen
	with High Density	
PCM1467	Research on the polymer modified self-compacting concrete used	Xiangzhi Kong
	for repair of concrete	
PCM1479	PSL lipase immobilized onto chitosan-coated activated carbon:	Ping Xue
	An efficient catalyst for transesterification enantiomer resolution	C
	of (R,S)-1-phenyl-3- buten-1-ol	
PCM1527	Preparation and properties of amorphous calcium phosphate	H.B. Shao
	/multi(amino acid) copolymer composite for bone repair	
PCM1065	Simulation of Fracturing Process for Heterogeneous Material us-	G S Su
	ing FLAC 3D	
PCM1068	On the properties of shuffle dislocation in diamondlike BC5: Core	H.L. Zhang
	structure and Peierls barrier and stress	U
PCM1188	The Application Review Of Magnesium Oxychloride Cement	Hongxia Oiao
PCM1221	Assessment on Structural Quality in Waterfront Green Space of	Yang Xianiun
	Shaoyang City by SBE Method	
PCM1222	Facile Preparation of a Macromolecular Benzophenone Photoin-	Oinghua Huang
	itiator	
PCM1253	Research on Pretreatment Technology for Corn Husk Degumming	Rong Zhou
PCM1203	Characterization of PEO-X Ionic Conductive Polymer for Anodic	Vini XI
1 0111274	Bonding	
	Donumg	

PCM1347	The preparation of nanosized polyethylene particles via novel	J Wang
	heterogeneous non-metallocene catalyst	
	(m-CH3PhO)TiCl3/CNTs/AlEt3	
PCM1348	Process study on curing composite material T-stiffened panel	W.F. Peng
PCM1363	Chitosan-schiff base Supported Metal Complex as Catalysts for	Wang Zi-weia
	the Asymmetric Hydration of 2-methacrylic acid	
PCM1441	Experimental research on FRP reinforced circle column subjected	Min Hou
	to axial compression	
PCM1449	Synthesis, Structure, Luminescence and Thermal Stable Prop-	Xiao-Min Hao
	erties of a Zinc(II) Coordination Polymer Constructed from	
	2-Hydroxyphenylacetic acid and 1,3-Bis(4-pyridyl)propane Lig-	
	ands	
PCM1455	Fabrication and Upsetting of Al6061 Aluminum Metal Matrix	Chang Ho Lee
	Composite with Carbon Nanotube Reinforcement	
PCM1468	A simple method to fabricate a hemocompatible coating by a	Shan Yang
	crosslinkable biomimetic bipolymer	
PCM1525	Synthesis and characterization of non-toxic thermal stabilizers of	Eunju Park
	PVC based on layered double hydroxides	

## Part IV Invited Keynote Speakers

## Keynote Speaker 1: Prof. Esteban Broitman



**Prof. Esteban Broitman** Linköping University, Sweden

Dr. Esteban Broitman is a Professor at the Thin-Film Physics Division, Department of Physics, Chemistry, and Biology at Linköping University, Sweden, and head of the Nanotribology Laboratory. His research activities focus on the physical properties of thin films deposited by vapor-phase deposition, in particular, microstructure evolution, mechanical and tribological properties. His particular interest is in the area of carbon-based coatings.

## Keynote Speaker 2: Prof. Bin Zhu



### Prof. Bin Zhu

Department of Energy Technology, Royal Institute of Technology (KTH), Sweden Hubei Collaborative Innovation Center, Faculty of Physics and Electronic Technology, Hubei Uni-versity, China

Prof. Bin Zhu is the head of the Advanced Fuel Cell and Solar Cell group, which is a part of the Heat and Power Division of Department of Energy Technology in Royal Institute of Technology. The group is well-known for innovative low temperature solid oxide fuel cell (300-600 oC), and leading EC-China multifunctional nanocomposites for advanced fuel cells (NANOCOFC) network, www.nanocofc.com, making active contributions to fuel cell field. The group has implemented externally granted projects in a total of ~1200 kEUR since 2009, including one Europe commission project and network.

Prof. Bin Zhu has dedicated himself to the research of novel energy conversion device for more than 20 years, and is a well-known expert in nanoscience, materials, and fuel cells field worldwide. Dr. Zhu's research shows some world leading activities in energy conversion fields internationally. He is pioneer for development of nanocomposite materials for low temperature Solid Oxide Fuel Cells. In recent years, the group has conducted a breakthrough research on electrolyte free fuel cell, which has been highlighted by Nature Nanotechnology and widely reviewed by media.

Outstanding milestones achieved

NANOCOFC (Nanocomposites for advanced fuel cell technology) Science and technology - a new

emerging new R&D explored and established since last 10 years, with PI's pioneer work followed by the world activities from USA, Canada, UK, France, Portugal, Italy, Turkey, Romania, Finland, Japan, Korea, China, India, Malaysia, Pakistan etc.www.nanocofc.com

A great breakthrough- electrolyte-free fuel cell (EFFC), one-component/layer device made by the PI, highlighted by Nature Nanotechnology and Materials Views: "... this new device works without an electrolyte, and all processes occur at particle surfaces in the material. This streamlined design should help pave the way towards more cost efficient fuel cells and perhaps even the arrival of the hydrogen economy."

## Keynote Speaker 3: Prof. Dumitru Nedelcu



## Prof. Dumitru Nedelcu

Manager of Precision Mechanics and Nanotechnologies Laboratory Gheorghe Asachi Technical University of Iasi, Romania

Prof. Dumitru Nedelcu is now Manager of Precision Mechanics and Nanotechnologies Laboratory – ISO Certification 9001/2008. He has participated and organized many conferences in Europe and Asia before, as keynote speakers and organizers.

Meanwhile he has served as Senate Member of Gheorghe Asachi Technical University of Iasi, Romania since July 2012. He has published 23 papers of which 10 in ISI journals with impact factors and co-authored 15 books and laboratory guides. He also served as reviewers and editorial board members for some journals.

## Keynote Speaker 4: Prof. R. K. Agarwal



**Prof. R. K. Agarwal** Chemistry Department, Lajpat Rai Postgraduate College, India

Prof. Dr. R. K. Agarwal retired from Chemistry Department, Lajpat Rai Postgraduate College in June 2011. He has 38 years' research experience and 35 students that received Ph.D. degree, 260 research publications in National and International research Journals (including accepted and communicated papers). His major research interest is coordination chemistry and bio-inorganic chemistry.

### Keynote Speaker 5: Prof. Der-Jang Liaw



#### **Prof. Der-Jang Liaw**

Academician of the Russian Academy of Engineering Doctor of Polymer Science, Osaka University, Japan National Taiwan University of Science and Technology, Taiwan

Prof. Liaw graduated from Osaka University, Japan as a Doctor of Polymer Science. He is Academician of the Russian Academy of Engineering and is now a professor in National Taiwan University of Science and Technology, in Taiwan.

To this day, he has 280 international publications, 155 conference papers, h-index of 32 (from ISI Web of Knowledge (1990-2011)), about forty five patents, US Patents (Patent Number: 5395900, 5755913, 5817741, 5844065, 6087470, 6137008, 7132565, 7205359, 7271230, 7282553, 7309751, 7323518, 7335704, 7368508, 7368509, 7388055, 7728090 and 7763691), JP Patents (JP Patent Number: 2904768, 3044206), Taiwan Patents (Patent Number: 076384, 089449, 099483, 108166, 114367, 122497, 138356, 153114, 154271, 160134, 162035, 166831, 186210, I224112, I227251, I250993, I271411 and I290153), and fourteen chemical related textbooks, including international textbooks: (1) Liaw, D.J. et al, "Transition Metal Catalyzed Polymerization ", R.P. Qurik (Ed.), Cambridge University Press, U.S.A. p. 671-687 (1988); (2) Kang, E. T., K. G. Neoh, K. L. Tan and D. J. Liaw, "Surface graft polymerization and grafting of polymers for adhesion improvement", in "Handbook of Adhesion Improvement Techniques in Advanced Materials", Edited by A. Pizzi and K. L. Mittal, Marcel Dekker, Inc. New York, Chapter 10, p. 289-321 (1998); (3) Liaw, D. J., W. H. Chen and C. C. Huang, Synthesis and Characterization of New Organosoluble Poly(ether imide)s Derived from Various Novel Bis(ether anhydride)", Polyimides and Other High Temperature Polymers, Edited by K. L. Mittal, VSP Publisher, Vol. 2, p. 47-70 (2003); (4) Liaw, D. J., Synthesis and Characterization of New Highly Organic Soluble Poly(imide)", Macromolecular Nanostructured Materials, Edited by Ueyama and Harada, Kodansha(Japan) and Springer(Germany), Chapter 2.2, p.80-100 (2004). According to the ISI Web of Knowledge (1977-2009), he has an h-index of 29 (meaning that 29 of his publications have been cited at least 29 times).

## Keynote Speaker 6: Prof. Masa-aki Kakimoto



#### Prof. Masa-aki Kakimoto

Department of Organic and Polymeric Materials Graduate School of Science and Engineering, Tokyo Institute of Technology, Japan

Dr. Masa-aki Kakimoto is a Professor in Department of Organic and Polymeric Materials, Graduate School of Science and Engineering, Tokyo Institute of Technology. He obtained Ph D degree in organic chemistry in 1980. After he moved to Tokyo Institute of Technology in 1982, he started the research of polymer synthesis, especially synthesis of condensation polymers. His Main research fields are as follows: (1) High performance polymers; (2) Dendritic macromolecules; (3) Polymer thin films; (4) Organic Synthesis.

He has 550 publications as follows: (1) High performance polymers, 251 Articles; (2) Dendritic macromolecules, 98 articles; (3) Polymer thin films, 118 articles; (4) Organic Synthesis, 22 articles; (5) Others, 61 articles. And he has 207 Patents.

## Keynote Speaker 7: Prof. Ziyi Ge



**Prof. Ziyi Ge** Ningbo Institute of Materials Technology and Engineering Chinese Academy of Sciences, China

Prof. Ziyi Ge got the bachelor degree from Lanzhou University in 1999, and Ph.D from Insitute of Chemistry, Chinese Academy of Sciences (CAS) in 2004. From 2005 to 2009, he focused on the research of organic electronics in Tokyo Institute of Technology, Kanagawa University, Japan and the University of New South Wales, Australia. In 2009, he was employed as Professor in East China University of Science and Technology. From 2010, he joined Ningbo Institute of Material Technology and Engineering, Chinese Academy of Sciences as the director of Organic Electronic Chemistry. So far, he has published above 36 papers in some top journals, such as Advanced Functional Materials, Chemistry of Materials and Macromolecules etc, which were cited over 590 times. From 2009, he has been in charge of more than 10 national and ministry projects, including 3 National Natural Science Foundation projects. He now holds 16 patents and 6 of them have been authorized. He is selected as 2012 Zhejiang "Thousand Talent Project", 2012 Zhejiang "Distinguished Specialist", 2011

Zhejiang "Qianjiang Talent" and 2009 Shanghai "Pujiang Talent" etc. Now, he is Organizing Committee member of IUPAC NMS Conference, visiting professor at the Tokyo Institute of Technology, in editorial board of "Energy Science and Technology" and in professional committee of Energy Storage of China Chemical Society.

## **Part V** Invited keynote Speeches

## Keynote Speech 1: Mechanical and Tribological Aspects of Nanocomposite Coat-

ings

Speaker: *Prof. Esteban Broitman* Linköping University, Sweden Time: 08:45-09:30, Wednesday Morning, May 28 Location: 3<sup>rd</sup> floor, Tianyi Hall, Pan Pacific Ningbo Hotel

#### Abstract:

During the last decade, ceramic and metallic nanocomposite coatings have attracted increasing interest because of the possibilities of synthesizing new materials with unique properties that are often unachievable in bulk materials. These composites consist of 3-10 nm crystalline grains embedded in an amorphous matrix, and the grains are separated by  $\sim$ 1-3 nm distance. This design combining amorphous and nanocrystalline phases have led to high-temperature stable coatings with hardness values as high as 105 GPa, comparable to natural diamond hardness.

In this talk, a comprehensive overview of the main theoretical models explaining the reason for the enhancement of the mechanical properties in different kind of nanocomposite coatings will be provided. New concepts for producing hard and low friction nanocomposite coatings tailored to specific applications will be discussed. Standard plasma assisted deposition processes for the industrial production of nanocomposite coatings will be reviewed. The high commercial potential for new applications as protective and functional coatings in tooling, automotive, aerospace, and manufacturing industries will be highlighted.

#### Keynote Speech 2: Multi-functional nanocomposites for new generation fuel cells

#### Speaker: Prof. Bin Zhu

Department of Energy Technology, Royal Institute of Technology (KTH), Sweden Hubei Collaborative Innovation Center, Faculty of Physics and Electronic Technology, Hubei University, China

## Time: 09:30-10:15, Wednesday Morning, May 28 Location: 3<sup>rd</sup> floor, Tianyi Hall, Pan Pacific Ningbo Hotel

#### Abstract:

The present study throws light and advocates several new applications and breakthrough technologies by using multifunctional nano- and composite materials integrating semiconductor and ionic conduction for next generation fuel cell technology, e.g. low temperature, 300-600oC, solid oxide fuel cells (LTSOFCs). In particular, the multifunctional ceria-semiconducting nanocomposites have made a great breakthrough technology. The single component electrolyte-free fuel cell (EFFC) without using the electrolyte separator and complex electrochemcial devcie construction using the anode/electrolyte/cathode three components has explored and established new science and technoilogy from the fuel cell more than 170 years R&D history. It was highlighted by Nature Nanotechnology and named as "Three in One" (Fuel cells: Three in one (research highlights). Nat. Nanotechnol. 6 (2011) 330), also by Materials Views:" This streamlined design should help pave the way towards more cost efficient fuel cells and perhaps even the arrival of the hydrogen economy."

With rapidly enormous new achievements and cutting edge technologies in frontier, this report is an element that throws light on the knowledge combined with the application emphasizing on LTSOFCs and EFFCs resulting next generation advances for fuel cell R&D with great new opportunities for fundamental and applied research as well as the comemcialization.

## Keynote Speech 3: Injection of "Liquid Wood": Samples Microstructure and

## **Properties**

### Speaker: Prof. Dumitru Nedelcu

Manager of Precision Mechanics and Nanotechnologies Laboratory, Gheorghe Asachi Technical University of Iasi, Romania

Time: 10:30-11:15, Wednesday Morning, May 28

Location: 3<sup>rd</sup> floor, Tianyi Hall, Pan Pacific Ningbo Hotel

#### Abstract:

#### First part: Short Presentation of University/Faculty/Laboratory

The first attempt to set up a form of higher education in the region of Moldova took place in 1562 when the Latin School in the village of Cotnari, near Iasi was founded. But it was only in 1813 when the scholar Gheorghe Asachi founded the first school for surveyors and civil engineers. This school can be considered the nucleus of the technical higher education in Moldova. Later on, the school is developed within the Michaelian Academy (1835), and afterwards within the University of Iasi, established in 1860. The Gheorghe Asachi Technical University of iasi has 27 fields, 56 specializations

of study developed within 11 faculties. The University has 940 teaching staff and 642 administrative staff.

The Faculty of Machine Manufacturing and Industrial Management from Iasi took up a leading place in technical superior education system from Romania, preparing engineers in the specializations: Machine Manufacturing Technology, Machines Tools and Systems of Production, Welding Engineering, Fine Mechanics and Nanotechnologies, Hydro-Pneumatic Machines and Sistems, Economical Engineering. My activities are focus on fine mechanics and composite materials technologies and my laboratory has a good colaboration with Laboratory of Materials Study. The infrastructure consists of CNC Manufacturing Centre Akira Seiki SR3, the Rapid Prototyping Z310Plus, the Injection Moulding Machine SZ-600H, the CNC milling machine ZS-400, the polished machine for plastic SJK 2000, the milling and boring machine SM 2502, the polished machine JET, the different types of fine mechanics lathes, roughness control-Surtronic and Tesa DuoSet, the Rockell-Brinell 206 equipment, the Optical system of bench-marks without contact, Kestrel System K/S/DL VISION, metallographic microscope Optika MM-1/im 7200, digital cameras GO-3 and CMOS, microscope Leica DMI 5000M, electronic microscope Quanta 200 3D, X-ray diffractometer X'PERT PRO MRD, plant plasma jet deposition equipment SPRAYWIZARD-9MCE.

#### Second part: "Liquid Wood"

The second part of my presentation will be focus on biodegradable composites. The use of recycled materials has become an important trend in all activity areas, reason why the liquid wood is the Technical University "Gheorghe Asachi" of Iasi Faculty of Machine Manufacturing and Industrial Management Department of Machine Manufacturing Technology Blvd. Mangeron, No. 59A, 700050 Iasi, Romania Tel.-Fax: 0040.232.217290 material that will replace plastic in the near future. The main drawback of plastics and their processing methods is the existence in their composition of some carcinogens, their non-biodegradability and the difficulty in recycling products made from these plastics. There are three types of material known as liquid wood, namely: arbofill, arboblend and arboform. Liquid wood can be reused up to five times over, without affecting the mechanical properties of the material, as for example fire resistance and durability. The only downside of liquid wood is the weight, being much heavier as compared to ordinary plastics. At the same time, another drawback would be the price of production, nearly double that of polypropylene, the most common plastic material. However, if we think of the beneficial effects on the environment, compared to petrole-um-derived plastics, the benefits clearly outrun these inconveniences.

The "Liquid Wood" can be used in many industrial applications such as: Furniture industry (handles, fittings, front panels, chairs); Construction (slab materials, junctions); Toys industry (figuriness, game pieces); Automotive (ornaments, switches, paneling); Electrical industry (connectors, switches, housings); Computers industry, TV, mobile phone housing, etc.

To the injection process were used the following parameters: Ttop-the melt temperature, [oC]; tinjinjection time, [s], tr-cooling time, [s], Ss-screw speed, [mm], Pinj-injection pressure, [MPa], Tmatmatrix temperature, [oC]. The most significant influence on the process is exercised by the injection pressure followed by the smeltery temperature, the matrix temperature. Then comes, with less significant influences, screw speed, the injection time and the cooling time. The samples obtained were under the three injection angle (0o, 450 and 900).

The main results after the simulation referred to: the maximum variation inlet; inlet flow rate; clamping force; fiber orientation and air traps.

From mechanical properties point of view in case of Arboblend the experimental data show that the

tensile strength reached  $44.05 \pm 0.48$  MPa at 23oC and the material had a brittle behavior. The tensile strain at fracture is  $4.88 \pm 0.3\%$  at 23oC. The friction coefficient registers a slight decrease approximately in the first 25s and then throughout the whole tested period it registers a slight increase. The friction coefficient average using the disc rotating is 0.1627. Increasing the time of testing leads to stabilization of friction coefficient value. Also the results for arbofill and arboform will be presented. Variation of friction coefficient is similar, the average friction coefficient being 0.1376. The variations of the friction coefficient presented do not include the noise parameters. Analyzing the diffractogram(XRD analysis), it results that the material seems to have a complete amorphous structure, without characteristic diffraction peaks. Using software of machine equipment was determined the following phases with peaks highlighted, such as: C5H14BF4N with cubic crystal structure and C13H16N2O6 with unknown crystal structure. The SEM analysis shows a a uniform structure with small impurities with a random orientation. In the spectrum of chemical elements dominate, both in percentage and atomic mass, carbon and oxygen followed by N (EDAX analysis). The same results will be presented for arbofill and arboform. Other important results during the presentation are: impact resistance, shore hardness; flexular tests and bending deflection, angle deflection, modulus of elasticity after flexural tests, microindentation, differential scanning calorimetry (DSC) and UV-VIS analysis qualitative study of spectra. All the results will be presented compared with the most plastic materials used.

According to the analyses performed and to the conclusions drawn, the arboblend, arbofill and arboform can replace different types of plastic materials in many industrial applications, such as the automobile industry, FMCG industry etc.

### Keynote Speech 4: Some High Coordination Compounds of Lanthanides (Iii) De-

#### rived from Schiff Bases Derived from 4-Aminoantipyrine and Their Applications

#### Speaker: Prof. R. K. Agarwal

Chemistry Department, Lajpat Rai Postgraduate College, India

#### Time: 11:15-12:00, Wednesday Morning, May 28

## Location: 3<sup>rd</sup> floor, Tianyi Hall, Pan Pacific Ningbo Hotel

#### **Abstract:**

Initially coordination chemistry of lanthanides was limited to strongly chelating ligands with oxygen as donor atom. With the development of new complexing compounds, a significant number of lanthanide complexes with various types of ligands were synthesized and characterized. The chemistry of metal complexes with heterocyclic compounds containing nitrogen, sulfur and oxygen as complexing ligands has attracted increasing attention. These compounds are worth attention for many reasons due to their biological activities while many drugs involve heterocycles, sulfur, oxygen, nitrogen, amino-nitrogen, azomethine-nitrogen and alcoholic or phenolic-oxygen are some of the donor atoms of interest. Pyrazolones (N-heterocyclic compounds) is an active moiety as a pharmaceutical ingredient, especially in non-steroidal anti-inflammatory agents used in the treatment of arthiritis and other musculoskeletal and joint disorders. Earlier work reported that some drugs showed increased activity when administered as metal-chelates rather than as simple organic compounds.

Lanthanides constitute an interesting group of 15 elements with similar physico-chemical properties which change periodically with the atomic number. Lanthanide compounds frequently have magnetic, catalytic and optic properties and therefore they are widely used in industries. In recent years new experimental methods have been developed due to which new data on the role of lanthanides in the biochemical processes operating in cellular membranes organelles and cytoplasm have been obtained. The coordination compounds formed by lathanides (III) generally display the coordination number varies from six to twelve with different geometries. In present lecture, the author reports the summary of the work mostly carried out in our laboratory on lanthanide (III) complexes of Schiff bases derived from 4-aminoantipyrine and their properties.

#### References

[1] Ram K.Agarwal and Vinesh Kumar, Phosphorus, Sulfur and Silicon, 2010 185, 1469-1483.

- [2] Ram K.Agarwal, H.Agarwal, S.Prasad and Anil Kumar, J.Korean Chem.Soc. 2011 55, 594-602.
- [3] Ram K.Agarwal, S.Prasad and Upma Singh, Int. J.Chem., 2012 1, 264 -280

## Keynote Speech 5: New Polymer Materials for the Potential of Optical, Electronic

## and Green Energy Applications

### Speaker: Prof. Der-Jang Liaw

Academician of the Russian Academy of Engineering, Russia Doctor of Polymer Science, Osaka University, Japan National Taiwan University of Science and Technology, Taiwan

### Time: 14:30-15:15, Wednesday Afternoon, May 28

## Location: 3<sup>rd</sup> floor, Tianyi Hall, Pan Pacific Ningbo Hotel

### Abstract:

Novel functional polymers such as conjugated polymers, polynorbornenes (PNBs), polyimides (PIs) and polyamides (PAs) were successfully synthesized through various polymerization methods including Suzuki coupling, ring-opening metathesis polymerization (ROMP) and low temperature polycondensation. Conjugated polymers with different backbones like polytriarylamines or poly(triarylamine-fluorene) were possessed water/alcohol solubility and high carrier mobility. Their HOMO were controlled between -4.9 to -5.2 eV to fabricate heterojunction thin film devices which played an important role in for perovskite dye-sensitized solar cells (DSSCs), organic photovoltaics (OPVs) and organic thin film transistor (OTFTs) as hole-transporting materials (HTMs). PNBs synthesized via ROMP showed excellent transparency about 90 % and high thermal stability (Tgs > 160 oC) by aromatic chromophores incorporation, for example, naphthalene, pyrene, fluorene, triphenylamine and carbazole. Triarylamines-containing polymers cast on flexible graphene-coated PET had electrochromic property and reversibility of multiple colour change. PIs derived from dif-

ferent architecture design (e.g., noncoplanar, cyclic aliphatic, bulky groups, fluorinated, heterocyclics, perylene, chiral, and unsymmetrical structure) revealed unique physico-mechanical, electrical and chemical properties. PAs with pyridine moiety displayed good film forming, flexibility, high thermal resistance and proton sensitivity. These polymeric materials had good organo-solubility in common solvents (e.g., THF, DMF, NMP and DMSO) which could be used to fabricate optoelectronic devices such as solar cells, organic field effect transistors, polymer memories and smart window applications.

Keywords: Electrochromism, hole-transporting materials, organic photovoltaics.

#### References

1. Huang, Y. C., K. L. Wang, C. H. Chang, Y. A. Liao, D. J. Liaw, K. R. Lee and J. Y. Lai, Macro-molecules, 46, 7443 (2013)

2. Liaw, D. J., K. L. Wang, Y. C. Huang, K. R. Lee, J. Y. Lai and C. S. Ha, Prog. Polym. Sci., 37, 907 (2012)

3. Chen M. C., D. J. Liaw, W. H. Chen, Y. C. Huang, J. Sharma and Y. Tai, Appl. Phys. Lett., 99, 223305 (2011)

4. Lian, W. R., Y. C. Huang, Y. A. Liao, K. L. Wang, L. J. Li, C. Y. Su, D. J. Liaw, K. R. Lee and J. Y. Lai, Macromolecules, 44, 9550 (2011)

5. Ling, Q. D., D. J. Liaw, C. X. Zhu, D. S. H. Chan, E. T. Kang and K. G. Neoh, Prog. Polym. Sci., 33, 917 (2008)

### Keynote Speech 6: Design of High Thermal Conductive Polymers

#### Speaker: Prof. Masa-aki Kakimoto

Department of Organic and Polymeric Materials, Graduate School of Science and Engineering,

Tokyo Institute of Technology, Japan

Time: 15:15-16:00, Wednesday Afternoon, May 28

## Location: 3<sup>rd</sup> floor, Tianyi Hall, Pan Pacific Ningbo Hotel

#### Abstract:

Electric devices are always developing with size downing. Because smaller devices produce more amount of heat, new heat diffusing system is always required, especially in power devices. In these cases, the heat diffusing materials must be electric insulators, and composites of high thermal conductive ceramics and matrix thermal conductive and electric insulating soft resins are applicable as actual insulating materials. Metals are highly thermal conductive because of the free electron. On the other hand, there is phonon heat conducting mechanism in organic polymers that have no free electron. As phonon moves through sigma bonding in polymers, phonon disperses to any direction due to coiled polymer structure. In this way, rigid rod polymers show higher thermal conductivity, but these polymers usually have low processability because of high glass transition temperature (Tg) and low solubility in organic solvents. Thinking about processability, epoxy resins having high thermal conductivity and low Tg are suitable candidate for matrix polymers. We design epoxy resins including LC units that compose aromatic rigid cores and flexible alkyl chains. Orientation of LC units is expected to increase thermal conductivity.

Two kinds of liquid crystalline units that have relatively low Tg were designed. The LC epoxy resins possess aromatic core units in the center of the structure, and epoxy terminals with several carbons alkyl units between the core and epoxy function. The first example of LC unit is the branching aromatic core. The epoxy resin had enough low meting point of 75 oC, and cured resin showed around thermal conductivity of 0.5 W/m.K, that was twice higher value compared with that of usual epoxy resin (0.2 W/m.K). The thermal conductivity was measured using a small test piece whose size was 1mm x 1mm of square with 0.3mm thickness using "ai-Phase mobile 2e" machine. In the second design, asymmetric structure of LC unit was prepared. The epoxy resin showed fluidity at 86 oC. It was found that dispersion of thermal conductivity among the test pieces of the cured resin from 0.35 to 0.75 W/m.K. Observation of optical microscope suggested dispersion of crystalline pieces in the bulk sample of the cured resin. This was the reason why the value of the thermal conductivity dispersed in wide range.

It was found that LC units make thermal conductivity improve. We are trying how to orient the LC units in the final composites.

## Keynote Speech 7: Highly Efficient Polymer Solar Cells

#### Speaker: Prof. Ziyi Ge

Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, China

#### Time: 16:15-17:00, Wednesday Afternoon, May 28

## Location: 3<sup>rd</sup> floor, Tianyi Hall, Pan Pacific Ningbo Hotel

#### Abstract:

Polymer solar cells (PSCs) have received enormous academic and industrial enthusiasm because of promising advantages such as low cost, light weight and large-area manufacturing compatibility.1-2 However, nearly all highly efficient PSCs (PCE>5%) reported so far have depended on thiophene-based polymers.

Herein, we synthesized a series of new p-type semiconducting polymers based on difuranylbenzooxadiazole. The three copolymers were named PBDT-DFBO, PBDTT- DFBO and PBDTF-DFBO. The deep HOMO level (~5.4 eV) of these polymers led to a high Voc of ~0.85V and we showed that the reduction of the bandgap of copolymers and the enhancement of charge mobility in the devices could be accomplished simultaneously by substituting the thiophene side group with furan counterpart. After optimization, PSCs based on PBDT-DFBO, PBDTT-DFBO and PBDTF-DFBO showed efficiency of 5.9%, 5.0% and 7.0%, respectively. To the best of our knowledge, the value of 7.0% is the highest efficiency for furan containing PSCs to date.



Figure 1. High performance solar cells based on furan containing polymers.

Further, we reported PSCs with exceptionally high PCE which was up to 10.02% using novel material in single heterojunction conventional PSCs. The material was found to simultaneously offer good contact for photogenerated charge-carrier collection and allow optimum photon harvest in the device.

#### Acknowledgment

This work was Financial supported from National Natural Science Foundation of China (21074144, 21102156, 51273209), Ningbo International Cooperation Foundation (2012D10009, 2013D10013) and the External Cooperation Program of the Chinese Academy of Sciences (No. GJHZ1219).

#### References

- [1] Cheng, Y.-J.; Yang, S.-H.; Hsu, C.-S. Chem. Rev. 2009, 109, 5868.
- [2] Wang, Y.; Yang, F.; Liu, Y.; Peng, R.; Chen, S.; Ge. Z.; Macromolecules 2013, 46, 1368.

# Part VI Hotel Information

## **1. Hotel Information**

Pan Pacific Ningbo is an international five-star hotel, which offers superior facilities for accommodation, dining and meeting. The hotel offers easy access to the Ningbo International Conference and Exhibition Center.

Address: 99 Min An Dong Lu, Jiangdong District, Ningbo, Zhejiang Province, China Homepage: <u>http://www.panpacific.com/en/Ningbo/Overview.html</u>

Tel/Fax: +86 574 8911 8888 / +86 574 8723 6666

If you want the committee to help you reserve the room, please send an email titled "Book Room" to the conference assistant at paper@cpcmconf.org.

## 2. Map of the hotel



10 minutes drive to the East Railway Station 离宁波东站只需 10 分钟车程 30 minutes drive to the Ningbo Lishe Airport 离宁波栎社机场只需 30 分钟车程 5 minutes drive to the Ningbo east high-speed entrance 离宁波东高速入口只需 5 分钟

Please take me to: 99 Min An Dong Lu, Jiangdong District, Ningbo (宁波市民安东路 99 号宁波泛 太平洋酒店)

## **Part VII One Day Mount Putuo Travel**

#### **Sightseeing Schedule**

#### Pan Pacific Ningbo Hotel -- Mount Puoto -- Pan Pacific Ningbo Hotel

The tourist bus arrives at the hotel at 7 a.m. Tourists take the bus to the Zhujiajian Dock, during the journey of which the bus will run across Yongzhou Cross Sea Bridge. After arrival at the Dock, they will then take a ship or speedboat to the famous Buddhist Fairyland on the sea--Mount Putuo, one of China's four famous Buddhist mountains and Ashram of Guanyin Bodhisattva. A 90-minute-visit around West Scenic Area, in which the MeiCenxian Guanyin bodhisattva expound the texts of Bud-dhism will be the first stop. Tourists may take a walk along the road and visit the Ancient Cave of Guanyin Bodhisattva, inside which the prettiest Guanyin bodhisattva of Mount Putuo lays. They can also hear the beautiful legends and watch the vivid Stone of Two Turtles or enjoy the reciting of sanskirt prayer in Pantuo Rock (the very typical scene of Mount Putuo, also named the First Mountain). In the MeiFu Buddhist Convent, tourists can touch the feet of the Buddha statues, which means bringing good luck to them and purify their hearts at Heart-carved Stone.

After lunch, tourists will visit the largest temple, Puji Temple in Mount Putuo for about 40 minutes. There will be eight halls including Living Hall, Yuantong Treasure Hall. They may pray for good luck and safety for family members and friends before the Statue of the first Real Guanyin Bodhisattva or visit HaiYin Pool and YuBei Pavillion (built by a emperor of Ming Dynasty). Then tourists come to the last scenic spots of this journey, South Sea Guanyin Bodhisattva. They may walk along the landscape road to the Purple Bamboo scenic area, watch the South Sea Guanyin Bodhisattva, and look over the Luojia Moutain, which looks like a reclining Buddha in the sea. It's said that he who does not reach Luojia Mountain has never been to Mount Putuo. And that ends the whole journal. Tourists go back to the hotel in the same bus.

## 普陀山一日游-游览行程

#### 宁波泛太平洋酒店-普陀山-宁波泛太平洋酒店

早上 07:00 车到酒店接宾客,乘汽车经甬舟跨海大桥赴朱家尖码头,乘快艇或船赴中国四大佛教名山•观音菩萨道场、海天佛国-普陀山,上岛后,访梅岑仙道至观音大士讲经说法的南海仙境-西天景区(游览时间约 90 分钟):沿着林荫小道(山路不陡也不太长)参观供奉着普陀山最好看的观音菩萨-观音古洞,在惟妙惟肖的二龟听法石边倾听美丽的传说,普陀山标志性景观•天下第一石-磐陀石下聆听一下普陀梵音,梅福庵里摸佛脚沾福气,心字石上净化一下心灵;

中餐,下午参观普陀山最大的寺院-普济寺(参观时间约40分钟):"活大殿"圆通宝殿等八大殿、在中国第一个正身毗卢观音前为自己和亲人祈福、求平安,参观海印池和御碑亭;沿景观道禅游至紫竹林景区,参观露天观音大佛像-南海观音(参观时间约50分钟)、远眺海上卧佛-洛迦山;乘快艇或船至朱家尖,乘车返宁波结束行程。

2015 Global Conference on Polymer and Composite Materials (PCM2015) PCM2015 will be held in Beijing, China on May 16-18, 2015. Beijing, the capital of the People's Republic of China and one of the most populous cities in the world, will welcome all participants for a renewed and vibrant conference.