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PROGRAM

MANA International Symposium 2013 27th February - 1st March, 2013

Venue: Tsukuba International Congress Center EPOCHAL TSUKUBA (Address: 2-20-3, Takezono, Tsukuba, Ibaraki, 305-0032, Japan)

February 26th

18:00 -Reception

February 27th

Opening

(Chair: Yoshio Bando)

9:00 - 9:05	Opening Address	
	Sukekatsu Ushioda (President of NIMS)	
9:05 - 9:10	Greetings	
	Yoshiaki Ando (Director; Basic Research Promotion Division,	
	Research Promotion Bureau, MEXT)	
9:10 - 9:20	Greetings	
	Toshio Kuroki (Program Director of WPI Program; Senior Advisor of Research Center for Science Systems, JSPS)	
9:20 - 9:30	Greetings	
	Gunzi Saito (Program Officer of WPI Program; Professor, Meijo University)	
9:30 - 9:50	Director Speech	
	Masakazu Aono (Director-General of MANA, NIMS)	
Special Lecture	1 (Chair: Masakazu Aono)	
9:50 - 10:35	Cross-coupling reactions of organoboranes: An easy way for carbon-carbon	
	bonding	
	Akira Suzuki (Nobel Laureate in Chemistry 2010)	
10:35 -10:40	Group Photograph at the Main Entrance	
10:40 -10:55	Coffee Break	
S-1 Nano-Pow	(Chair: Andrew A. Gewirth, Kohei Uosaki)	
10:55 - 11:25	Sunlight-driven hydrogen formation by membrane-supported photoelectrochemical	
	water splitting (Invited)	
	Nathan S. Lewis (Director; Joint Center for Artificial Photosynthesis, CalTech)	
11:25 - 11:55	Photoinduced charge separation for energy and biological applications (Invited)	

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11:55 - 12:15	Hiroshi Imahori (Professor; Nano-photocatalytic materials for s		
	Jinhua Ye (MANA Principal	Investigator; NIMS)	
12:15 - 12:30	Ultrafast molecular structure dyna	mics of dye sensitized solar cell studied by	
	femtosecond infrared spectroscop	у	
	Hidenori Noguchi (MANA S	Scientist; NIMS)	
12:30 -13:30	Lunch		
S-2 Nano-Pow	ver 2	(Chair: Nathan S. Lewis, Jinhua Ye)	
13:30 - 14:00	Electrocatalysis of small molecule of new catalysts (Invited)	reductions: Mechanistic studies and the design	
	• • • •	sor; I ² CNER, Kyushu University,	
		rsity of Illinois at Urbana-Champaign)	
14:00 - 14:30		lytic reactions at interfaces (Invited)	
	Yoshitada Morikawa (Profe		
14:30 - 14:50	A self-organized nanostructure for se	olid-state lithium batteries	
	Kazunori Takada (MANA P	rincipal Investigator; NIMS)	
14:50 - 15:05	III-Nitride semiconductors for high	n-efficiency energy conversion devices	
	Liwen Sang (ICYS-MANA F	Researcher; NIMS)	
15:05 - 15:30	Coffee Break		
15:30 - 17:00	Poster Presentations	(Chair: Tomonobu Nakayama)	
17:00 - 17:10	Coffee Break		
17:10 - 19:00	Poster Session		
February 28 th			
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S-3 Nano-Life	9 1	(Chair: Samuel Stupp, Yukio Nagasaki)	
9:00 - 9:30	Nanoscale surface modifications f	or directing biological response (Invited)	
	Buddy Ratner (Professor &	Michael L. & Myrna Darland Endowed Chair	
	in Technolog	gy Commercialization Joint with Chemical	
	Engineering Dire	ector, UW Engineered Biomaterials (UWEB-21))	
9:30 - 10:00	Manipulation of human genome us	sing chemistry-based DNA cutter (Invited)	
	Makoto Komiyama (Profes	sor; University of Tsukuba)	

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10:00 - 10:20 Nanoarchitectonics-driven interfaces and nanoparticles for therapeutic applications **Francoise Winnik** (MANA Satellite Principal Investigator;

Université de Montréal)

10:20 - 10:35 Photoactivatable nanopatterned surface to explore cellular nanoarchitectonics in collective migration

Jun Nakanishi (MANA Independent Scientist; NIMS)

10:35 - 10:55 Coffee Break

S-4 Nano-Life 2

(Chair: Buddy Ratner, Takao Aoyagi)

- 10:55 11:25
 Supramolecular nanoscale architectures for energy and medicine (Invited)

 Samuel I. Stupp
 (Professor of Materials Science, Chemistry, and Medicine Northwestern University)
- 11:25 11:55 Engineering neo-biomimetics: Materials engineering based on biological diversity and self-organization. A brief introduction of "Engineering Neo-Biommimetics" (Invited) Masatsugu Shimomura (Professor; WPI-AIMR, Tohoku University)
- 11:55 12:15 Oral redox polymer therapeutics **Yukio Nagasaki** (MANA Satellite Principal Investigator; University of Tsukuba)
- 12:15 12:30 Dynamic regulation of stem cell behavior through materials nanoarchitectonics: the role of Hippo pathway in stem cell mechanosensing **Giancarlo Forte** (MANA Scientist; NIMS)
- 12:30 13:30 Lunch

S-5 Nano-Materials 1

(Chair: Seiji Shinkai, Katsuhiko Ariga)

- 13:30 14:00 Nanostructured inorganic-organic framework materials (Invited)
 Anthony K. Cheetham (Professor; University of Cambdridge)
 14:00 14:30 Advanced molecular design of functional organic materials (Invited)
 - Takuzo Aida (Professor; University of Tokyo)
- 14:30 14:50 Nanogenerators as new energy technology and piezotronics for functional systems **Zhong Lin Wang** (MANA Satellite Principal Investigator; Georgia Tech)

14:50 - 15:10 Coffee Break

S-6	Nano-Materials 2	(Chair: Anthony K. Cheetham, Zhong Lin Wang)
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15:10 - 15:40 Dynamic polymer-polymer recognition inspired by helix-forming polysaccharides

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(Invited) Seiji Shinkai (Professor; Kyushu University, Kyushu ISIT, Sojo University) 15:40 - 16:10 From polyelectrolyte multilayers to "Soft" nanomaterials and -devices (Invited) Gero Decher (Professor; Université de Strasbourg and CNRS) 16:10 - 16:30 Hand-operating nanotechnology: Mechanically tunable molecular recognition Katsuhiko Ariga (MANA Principal Investigator; NIMS) 16:30 - 16:50 Coffee Break S-7 Nano-Materials 3 (Chair: Gero Decher, Louis Schlapbach)

- 16:50 17:20 Next generation communication system utilizing high-speed graded index plastic optical fiber and high-definition large display (Invited)
 Yasuhiro Koike (Professor; Keio University)
- 17:20 17:35 Oriented assembly of polyhedral plasmonic nanoparticle clusters: Nanoscale interparticle gaps, fano resonances and highly uniform SERS enhancement factors
 Joel Henzie (MANA Independent Scientist; NIMS)
- 17:35 17:50 Optically- and electrically-driven dual-gate organic-thin-film transistor **Ryoma Hayakawa** (MANA Independent Scientist; NIMS)
- 19:00 Banquet

March 1st

Special Lecture	2		(Chair: M	lasakazu Aono)
9:00 - 9:45	0	vity - after a quarter (Nobel Laureate ir	century - a technology ו ח Physics 1987)	eady for Take Off
9:45 - 9:50	Break			
S-8 Nano-Sys	tem 1		(Chair: Michelle Y. Sim	mons, Xiao Hu)
9:50 - 10:20	Skyrmion – particle in helical magnets (Invited) Naoto Nagaosa (Professor; University of Tokyo)			
10:20 - 10:50	Electrical control of mag	gnet (Invited)		
	Teruo Ono (Profe	essor; Kyoto Univers	sity)	

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- 10:50 11:05 Surface-molecular hybrid superconductors: Towards realization of majorana fermions **Takashi Uchihashi** (MANA Scientist, NIMS)
- 11:05 -11:25 Coffee Break

S-9	Nano-Syst	em 2	(Chair: Rodney Ruoff, James K. Gimzewski)
11:25	5 - 11:55	Quantum computing in silicc	on with donor electron spins (Invited)
		Michelle Y. Simmons	(Professor; CQC2T, School of Physics,
			University of New South Wales)
11:55	5 - 12:25	Deterministic doping for nanoel	ectronics and the application to biological system (Invited)
		Takahiro Shinada (Se	enior Offier; AIST)
12:25	5 - 12:40	Tuning of magnetic and con-	ducting properties of nanoscale graphene
		Katsunori Wakabayasi	hi (MANA Independent Scientist; NIMS)
12:40	0 -13:40	Lunch	
S-10	Nano-Sys	tem 3	(Chair: Teruo Ono, Tsuyoshi Hasegawa)
13:40	0 - 14:10	Graphene-based, graphene	-derived, and new carbon materials (Invited)
		Rodney Ruoff (Profes	ssor; University of Texas at Austin)
14:1() - 14:40	Molecular theory about underwa	ater stones in graphene material science (Invited)
		Elena Sheka (Profess	or; Peoples' Friendship University of Russia)
14:40 - 15:00	0 - 15:00	Self-crystallization of organic	c semiconductor for high performance field-effect
		transistors on any substrate	3
15:00) - 15:20	Kazuhito Tsukagoshi TBA	(MANA Principal Investigator, NIMS)
		James K. Gimzewski	(MANA Satellite Principal Investigator, UCLA)

Closing

15:20 - 15:30 Closing Remarks **Yoshio Bando** (MANA Chief Operating Officer, NIMS)