SYMPOSIUM M

DNA Nanoscience and Physics

Symposium M: DNA Nanoscience and Physics

Level 3, Room 309

Mon, 29-Jun-09	Tue, 30-Jun-09	Wed, 1-Jul-09	Thu, 2-Jul-09	Fri, 3-Jul-09
	(08:30 - 09:15) Plenary Lecture 2 Peter Doherty	(08:30 - 09:15) Plenary Lecture 4 John Pendry	(08:30 - 09:15) Plenary Lecture 6 Hartmut Michel	
(09:00 - 09:45) Opening Ceremony	(09:15 - 10:00) Plenary Lecture 3 Andrew Wee	(09:15 - 10:00) Plenary Lecture 5 Chad Mirkin	(09:15 - 10:00) Plenary Lecture 7 Akihisa Inoue	(09:00 - 09:45) Plenary Lecture 8 Jean-Marie Basset
(09:45 - 10:30) Plenary Lecture 1 Peter Gruenberg	(10:00 - 10:30) Coffee Break			(09:45 - 10:30) Plenary Lecture 9 Frederick Lange
(10:30 - 11:00) Coffee Break				(10:30 - 11:00) Coffee Break
(11:00 - 12:15) **Session M-S1**	(10:30 - 12:15) **Session M-S4**	(10:30 - 12:30) **Session M-S6**	(10:30 - 12:30) **Session M-S9**	(11:00 - 13:30) **Session M-S12**
(12:30 - 14:00) Lunch (13:00 - 13:45) Theme Lecture James L. Hedrick	(12:30 - 14:00) Lunch (13:00 - 13:45) Theme Lecture Martyn Poliakoff	(12:30 - 14:00) Lunch (13:00 - 13:45) Theme Lecture Karl U. Kainer	(12:30 - 14:00) Lunch (13:00 - 14:30) Panel Discussion	(13:00 - 14:30) Closing & Poster Award Ceremony Lunch
(14:00 - 16:15) **Session M-S2**	(14:00 - 16:30) **Session M-S5** **POSTER SESSION**	(14:00 - 15:30) **Session M-S7**	(14:30 - 16:00) **Session M-S10**	
(16:15 - 16:30) Break		(15:30 - 17:30) **Session M-S8**	(16:00 - 18:00) **Session M-S11**	
(16:30 - 18:30) **Session M-S3**	(18:00 - 20:00) Public Lectures @ UCC Peter Doherty Peter Gruenberg	(19:00 - 20:00) Public Lecture @ UCC Hartmut Michel	(19:00 - 22:00) Conference Banquet @ Suntec	

M-S1

Monday, 29 June 2009
11:00-12:15
Level 3, Room 309

11:00 M-S1.1-2(KN) A01804-03220 pg M22
Electrostatic Interactions in Chromatin
Lars NORDENSKIÖLD

11:30 M-S1.3-4(IN) A02939-05022 pg M40
The Shape of Motile Cells: Understanding How Cytoskeletal Dynamics, Membrane Tension and Adhesion Determine Global Cell Morphology
Kinneret KEREN

12:00 M-S1.5-6(IN) A02978-05092 pg M41
Non-equilibrium Phase Transitions in Tubulation by Molecular Motors
Yariv KAFRI

M-S2

Monday, 29 June 2009
14:00-16:15
Level 3, Room 309

14:00 M-S2.1-2(KN) A01058-01837 pg M9
Emergence of Nano-Order through Discrete Transition on a Single Giant DNA and a Reconstituted Chromatin
Kenichi YOSHIKAWA

14:30 M-S2.3-4(IN) A01573-03326 pg M11
Diffusion and Segmental Dynamics of Double-Stranded DNA
Roland G. WINKLER

15:00 M-S2.5-6(IN) A02918-04988 pg M39
DNA-Nanoparticle System: Self-assembly, Patterning, Real-time Probing, and a General Model
Dan LUO

15:30 M-S2.7(IN) A01993-03442 pg M28
Microcapsules as Diffusion Controlled Reaction Compartments for High Throughput PCR
Wing Cheung MAK, Yee Cheung KWAN, Reinhard RENNEBERG, Dieter TRAU

15:45 M-S2.8(O) A01625-02815 pg M16
Viscoelasticity of Entangled λ-phage DNA Solutions
Xiaoying ZHU, Binu KUNDUKAD, Johan R. C. van der MAAREL

16:00 M-S2.9(O) A01614-02803 pg M14
DNA Viscoelasticity; Relaxation of Entanglements with a Topology Controlling Enzyme
Binu KUNDUKAD, Johan R. C. VAN DER MAAREL

M-S3

Monday, 29 June 2009
16:30-18:30
Level 3, Room 309

16:30 M-S3.1-2(IN) A01689-03045 pg M19
New Motifs for DNA Nanostructures
Satoshi MURATA, Satoshi NISHIMOTO, Hamada SHOGO

17:00 M-S3.3-4(IN) A02994-05115 pg M41
DNA Assembly within Living Cells: New Puzzles
G. V. SHIVASHANKAR

17:30 M-S3.5(O) A01609-02798 pg M12
Temperature Dependence of Circular DNA Topological States
Hu CHEN, Yan JIE

17:45 M-S3.6(O) A01624-02813 pg M16
AFM Imaging Studies of Chromatins in Xenopus Egg Extract
Hongxia FU, Benjamin FREEDMAN, Rebecca HEALD, Chwee Teck LIM, Jie YAN

18:00 M-S3.7(O) A00529-00962 pg M9
Molecular Mechanics Basis for Autonomous Coordination in Bipedal Biomolecular Motors
Zhisong WANG

18:15 M-S3.8(IN) A02127-03669 pg M32
Fine-tuning of DNA-polyelectrolyte Interactions and DNA Transfection via Chemically Coded Core-shell Macroions
Tanja WEIL, Radu GROPEANU, Klaus EISELE

M-S4

Tuesday, 30 June 2009
10:30-12:15
Level 3, Room 309

10:30 M-S4.1-2(KN) A01542-02691 pg M10
The Nature and Characterization of Order in High Density DNA Mesophases
Rudolf PODGORNIK

11:00 M-S4.3-4(KN) A01679-02901 pg M18
Mechanisms of Renaturation and Hybridization of Nucleic Acids: Universality and Specificity in Molecular Biology
Jean-Louis SIKORAV

11:30 M-S4.5-6(KN) A02537-04341 pg M37
A Brownian Dynamics Model for Cross-linked Actin Gels under High Prestrain
Taeyoon KIM, Wonmuk HWANG, Roger D. KAMM

12:00 M-S4.7-8(IN) A02816-04822 pg M38
Nanotechnology: The Exploitation of Biology for Nanostructure Engineering
Alexander Giles DAVIES

M-S5: Poster Session

Tuesday, 30 June 2009
14:00 - 16:30
Level 3, Gallery

M-S5.01(P) A01524-02921 pg M10
Purification of PHSG298 Supercoiled Plasmid DNA Using Anion-exchange Chromatography at Lab Scale
Amar Nath GUPTA, Xiaoying ZHU, Bow HO, Johan R. C. VAN DER MAAREL

M-S5.02(P) A01551-02702 pg M11
Ensemble Inequivalence in Single Molecule Experiments
Marcello SEGA, Mehmet SUZEN, Christian HOLM

M-S5.03(P) A01573-03328 pg M12
Hydrodynamic Interactions in Polyelectrolyte Electrophoresis
Roland G. WINKLER, Sandra FRANK

M-S5.04(P) A01588-02765 pg M12
Disruption of Regular Structure in DNA Minicircles
Quan DU, Xiaozhong ZHANG, Alexander KOTLYAR, Alexander VOLOGODSKII

M-S5.05(P) A01609-02883 pg M13
Effects of Kink and Flexible Hinge Defects on Mechanical Responses of Short Double-stranded DNA Molecules
Hu CHEN, Jie YAN

M-S5.06(P) A01610-02799 pg M13
A Synthetic DNA Motor
Yvonne KLAPPER, Daniel LUBRICH

M-S5.07(P) A01611-02800 pg M13
Excitation of Defects in Sharp Unwound DNA
Peiwen CONG, Jie YAN

M-S5.08(P) A01612-03677 pg M13
Conformational Response of Linear DNA to Confinement in a Nanochannel
Siow Yee NG, Johan R. C. VAN DER MAAREL

M-S5.09(P) A01614-02875 pg M14
Effect of Salt on the Viscoelasticity of Entangled Lambda Phage DNA Solution
Jin Yi LIM, Binu KUNDUKAD, Johan R. C. VAN DER MAAREL

M-S5.10(P) A01617-02806 pg M15
Compaction of DNA in White Spot Syndrome Virus
Yingjie LIU, Jinlu WU, Choy Leong HEW, Jie YAN

M-S5.11(P) A01618-02808 pg M15
Simulations of the Interactions of Confined DNA and Nanoparticles
Andrej GRIMM, Johan VAN DER MAAREL

M-S5.12(P) A01620-02810 pg M15
Effects of Flexible Defect Excitation on Various DNA Mechanical Responses
Zhen ZHOU, Hu CHEN, Liang DAI, Johan R. C. VAN DER MAAREL, Jie YAN

M-S5.13(P) A01621-02811 pg M15
DNA Confined in Membranic Surface Bound Enclosures
Laiyi LIN, Daniel LUBRICH

M-S5.14(P) A01624-02834 pg M16
Effects of Magnesium Salt Concentrations on B-DNA Overstretching Transition
Hongxia FU, Hu CHEN, C.G. KOH, C.T. LIM

M-S5.15(P) A01636-02837 pg M16
On the Conformation of DNA Confined in a Nanochannel or Absorbed at an Interface
Ce ZHANG, Van der Maarel JOHAN

M-S5.16(P) A01640-02969 pg M17
Chromatin Packing and Transport in the Cell Nucleus Modeled on a Three-dimensional Lattice
Annika WEDEMEIER, Christian FRITSCH, Jorg LANGOWSKI

M-S5.17(P) A01666-02884 pg M18
Non-harmonic DNA Bending Elasticity is Revealed by Statistics of DNA Minicircle Shapes
Hu CHEN, Hongxia FU, Zhen ZHOU, Jie YAN

M-S5.18(P) A01679-02902 pg M18
Symmetries and Asymmetries of the Genetic Material
Jean-Louis SIKORAV, Arach GOLDAR, Alan BRASLAU

M-S5.19(P) A01707-03248 pg M20
FRET-Based Analysis of Force-Dependent Molecular Extension of the Cell Mechano-Sensor Protein p130Cas: Live Cell Imaging vs. Single Molecule Study
Hiroaki MACHIYAMA, Lu ZHANG, Keiko KAWAUCHI, Christopher W. HOGUE, Yan JIE, Yasuhiro SAWADA

M-S5.20(P) A01713-02989 pg M21
DNA Condensation and Extension by Nanoparticles
Johan R. C. VAN DER MAAREL, Ce ZHANG

M-S5.40(P) A02302-03934 pg M35
Mineral-solution Interfacial Structures and Its Chemical Implications in Biomineralization
Pan HAIHUA, Tang RUIKANG, Liu XIANGYANG

M-S5.41(P) A02385-04074 pg M35
Electric Field Induced,Superhydrophobic to Superhydrophilic Switching in ά-MnO_2 Nanotubes
Xiaodan ZHAO, Xiangyang LIU, Haiming FAN

M-S5.42(P) A02534-04674 pg M36
Assembly and Patterning of DNA-capped Nanoparticle Superlattices via Controlled Dewetting
Wenlong CHENG, Junhao Shawn TAN, Michael CAMPOLONGO, Mark HARTMAN, Nokyoung PARK, Dan LUO

M-S6

Wednesday, 1 July 2009
10:30-12:30
Level 3, Room 309

10:30 M-S6.1-2(KN) A02009-03471 pg M29
Synthetic Reaction Circuits based on DNA and RNA
Friedrich SIMMEL

11:00 M-S6.3-4(IN) A01551-02701 pg M10
Mobilities, Effective Friction, and the Dynamical Effective Charge of Polyelectrolytes
Kai GRASS, Christian HOLM

11:30 M-S6.5(IN) A01707-03039 pg M19
Exploration of Cell Mechanotransduction: Identification of p130Cas as an Ion Channel-Independent Cytoskeletal Mechano-Sensor and Possible Mechanical Roles for "Flexible" Protein Domains
Yasuhiro SAWADA, Wee Wee TAN, Julio M. FERNANDEZ, Michael P. SHEETZ, Christopher W. HOGUE

11:45 M-S6.6(IN) A01639-02839 pg M17
Single Molecule Studies of BAF-DNA Interactions Show How Retroviral DNA Can Avoid Suicidal Autointegration
Dunja SKOKO, Min LI, Huang YING, Michiyo MIZUUCHI, Robert CRAIGIE, Kiyoshi MIZUUCHI

12:00 M-S6.7(IN) A02005-03498 pg M29
Photo-driven DNA Nanomachine with New Duplex Motif Composed of Threoninol
Hiroyuki ASANUMA, Mochizuki TOSHIO, Nobutaka TAKENAKA, Hidenori NISHIOKA, Xingguo LIANG

12:15 M-S6.8(IN) A02858-04888 pg M39
Demystify *de novo* Gene Assembly with One-step Real-time Gene Synthesis
Mo-Huang LI, Wai Chye CHEONG, Mo Chao HUANG, Marcus BODE, Hongye YE, Jackie Y. YING

M-S7

Wednesday, 1 July 2009
14:00-15:30
Level 3, Room 309

14:00 M-S7.1-2(KN) A01588-02766 pg M12
DNA Bending
Alexander VOLOGODSKII

14:30 M-S7.3-4(IN) A00015-00017 pg M8
Modeling the DNA Molecule Using Equivalent Circuit
Harry KWOK

15:00 M-S7.5(O) A01613-02802 pg M14
Kinetics of Single DNA Compaction by Hexaammine Cobalt Chloride
Wenbo FU, Ming LI, Jie YAN

15:15 M-S7.6(IN) A02197-03763 pg M33
Structures of DNA and RNA G-quadruplexes
Anh Tuan PHAN

M-S8

Wednesday, 1 July 2009
15:30-17:30
Level 3, Room 309

15:30 M-S8.1(IN) A01830-03185 pg M24
Amyloidogenesis Abolished by Proline Substitutions but Enhanced by Lipid Binding: A Molecular Dynamics Study on the Aggregation of Rat/Human Islet Amyloid Polypeptide Segments
Ping JIANG, Weixin XU, Yuguang MU

15:45 M-S8.2(O) A02047-03522 pg M30
A Universal Description of DNA Condensation by Cationic Ligands
Nikolay KOROLEV, Nikolay V. BEREZHNOY, Lars NORDENSKIÖLD

16:00 M-S8.3(O) A01612-02801 pg M13
Conformational Response of Supercoiled DNA to Confinement in a Nanochannel
Siow Yee NG, Wilber LIM, Chinchai LIM, Yuan Ping FENG, Johan R. C. VAN DER MAAREL

16:15 M-S8.4(IN) A00024-00025 pg M8
Single Molecule Study on the Mechanism of UvrD-Med
Ming LI, Bo SUN, Xu-Guang XI

16:30 M-S8.5(IN) A01808-03157 pg M23
Mechanical Insights into the Physiological Functions of Intercellular Adhesion Molecules at Tight Junctions
Sri Ram Krishna VEDULA, Tong Seng LIM, Walter HUNZIKER, Chwee Teck LIM

16:45 M-S8.6(O) A01618-03723 pg M15
New Approach for Ratchet-Based Particle Separation
Andrej GRIMM

17:00 M-S8.7(O) A01834-03188 pg M24
Why is Spider Silk Stronger than Insect Silk?
Ning DU, Xiang Yang LIU, Gangqin XU, Xiang WU, Hu ZHOU

17:15 M-S8.8(O) A02075-03670 pg M30
Molecular Nanospring: Mystery of Ultra-functional Spider and Silkworm Silk
Xiang WU, Xiangyang LIU, Ning DU, Gangqin XU, Baowen LI

M-S9

Thursday, 2 July 2009
10:30-12:30
Level 3, Room 309

10:30 M-S9.1-2(KN) A02857-04887 pg M39
Force Transduction at Adhesion Sites by Stretching Single Talin Rod Molecules: A Molecular Mechanism for Vinculin Recruitment
Amando DEL RIO, Raul PEREZ JIMENEZ, Ruchuan LIU, Pere ROCA-CUSACHS, Julio M. FERNANDEZ, Michael P. SHEETZ

11:00 M-S9.3-4(IN) A02935-05015 pg M40
DNA Condensation Induced by Poly-cationic Molecules: From Polyamines to Protamines
Eric RASPAUD

11:30 M-S9.5(IN) A02519-04475 pg M36
Fabrication of Porous Nanochannels using Nanoparticles for Applications in Transport of DNA Molecules
Deying XIA, Steven BRUECK

11:45 M-S9.6(IN) A01944-03593 pg M26
Distinct Stabilization of DNA Duplex by Introducing Cationic Dye Cluster
Hiromu KASHIDA, Hidehiro ITO, Taiga FUJII, Hiroyuki ASANUMA

12:00 M-S9.7(O) A01633-02830 pg M16
Kinetically Controlled Self-Assembly of DNA Oligomers
Daniel LUBRICH, Simon J. GREEN, Andrew TURBERFIELD

12:15 M-S9.8(IN) A01766-03094 pg M21
Cationic Comb-type Copolymers as DNA Chaperones
Atsushi MARUYAMA, Longliang WU, Rui MORIYAMA, Arihiro KANO, Naohiko SHIMADA

M-S10

Thursday, 2 July 2009
14:30-16:00
Level 3, Room 309

14:30 M-S10.1-2(KN) A01640-02841 pg M17
Nucleosome Dynamics Studied by Single Molecule Fluorescence and Computer Simulations
Jorg LANGOWSKI

15:00 M-S10.3-4(IN) A01928-03725 pg M25
Fabrication of DNA Nanostructures for NanoBio Devices
Sung Ha PARK

15:30 M-S10.5(IN)
Wires, Reporters and Information Capsules: Cellular Journalism with DNA
Yamuna KRISHNAN

15:45 M-S10.6(IN) A02448-04179 pg M36
DNA Nucleobase Identification with STM
Bo SONG, Marcus ELSTNER, Wenpeng QI, Haiping FANG

M-S11

Thursday, 2 July 2009
16:00-18:00
Level 3, Room 309

16:00 M-S11.1(IN) A02042-03516 pg M29
Cells on Chips
Danny VAN NOORT

16:15 M-S11.2(IN) A02158-03713 pg M32
Conjugated Polymers as Light Harvesting Materials for DNA Studies
Ning TIAN, Xinsheng REN, Qing-Hua XU

16:30 M-S11.3(O) A01524-02663 pg M9
Study of Salt Effect on Supercoiled Plasmid DNA by Light and Neutron Scattering
Amar Nath GUPTA, Xiaoying ZHU, Johan R. C. VAN DER MAAREL

16:45 M-S11.4(O) A02109-03636 pg M32
Mechanical Characterization of Protein L in the Low-force Regime by Electromagnetic Tweezers/ Evanescent Nanometry
Ruchuan LIU, Sergi GARCIA-MANYES, Atom SARKAR, Carmen L. BADILLA, Julio M. FERNANDEZ

17:00 M-S11.5(IN) A02242-03823 pg M34
Silk: from Structure to Performance
Xiang-Yang LIU

17:15 M-S11.6(O) A01622-02812 pg M15
A Contractile DNA Molecular Machine
Jie LIN, Daniel LUBRICH, Jie YAN

17:30 M-S11.7(O) A02266-03864 pg M34
Superior Strength of Silkworm Silk and Its Relation to Structure
Gangqin XU, Xiangyang LIU, Ning DU, Yang LI

17:45 M-S11.8(O) A02738-04712 pg M37
Nanofluidic Channel System: A Promising Approach for Detecting Single Molecule Behaviors through Fluorescence Correlation Spectroscopy (FCS)
Liping WANG, Xiaotao PAN, Thorsten WOHLAND, Peige SHAO, Frank WATT

M-S12

Friday, 3 July 2009
11:00-13:30
Level 3, Room 309

11:00 M-S12.1-2(KN) A01846-03202 pg M24
The Physics of Genome Management
Rob PHILLIPS

11:30 M-S12.3-4(IN) A02932-05012 pg M40
The Many-body Nature of Gene Interaction
Erez BRAUN

12:00 M-S12.5-6 (IN)
Fidelity and Target Location During RecA-Catalyzed Homologous Recombination
Joel STAVANS

12:30 M-S12.7-8 (IN)
The Role of SsrB and H-NS in Transcription Activation and Silencing/Anti-silencing During Salmonella Pathogenesis
Don WALTHERS, Lingjie LIU, Hu CHEN, Jie YAN, Linda J. KENNEY

13:00 M-S12.9(O) A01666-02882 pg M18
Switching H-NS between Two Modes of Binding to DNA
Yingjie LIU, Hu CHEN, Linda KENNEY, Jie YAN

13:15 M-S12.10(O) A01713-02988 pg M20
A Nanochannel Platform for Single-DNA Studies
Johan R. C. VAN DER MAAREL, Ce ZHANG, Peige SHAO, Jeroen A. VAN KAN
