``Statistical physics and topology of polymers with ramifications
to structure and function of DNA and proteins''

Augst 2-6, 2010, YITP, Kyoto University, Japan

Aug 2, Monday (7 talks)

9:40-9:50 Opening

(2.1) 9:50-10:50

Lynn Zechiedrich, Baylor College of Medicine, USA
``DNA topology in gene therapy''

coffee break 30 min

(2.2) 11:20-12:00

Sarah A Harris, University of Leeds, UK
``Computer Simulations of DNA Topology at the Atomic Level''

LUNCH 12:00 - 13:30 90 minutes

(2.3) 13:30-14:10

Dorothy Buck, Imperial College, UK
``DNA-Protein Interactions: A Localised Topological Model''

(2.4) 14:10-14:50

Kai Ishihara, Saitama University, Japan
``On tangle analysis of site-specific recombination''

coffee break 40 min

(2.5) 15:30-16:10

Akio Kawauchi, Osaka City University, Japan
``On transforming a spatial graph into a plane graph''

(2.6) 16:10-16:50

Kouki Taniyama, Waseda University, Japan
``Linking numbers and Simon invariants in a large spatial graph''

(2.7) 16:50-17:30

Stephen Hyde, Australian National University, Australia
``Entanglements of polyhedral graphs and three-periodic nets''

Aug 3, Tuesday (8 talks)

(3.1) 9:00-9:40

Claus Ernst, Western Kentucky University, USA
``On the nullification number of knots and links''

(3.2) 9:40-10:20

Chris Soteros, University of Saskatchewan, Canada
``Knotting Statistics after a local strand passage in a lattice polygon''

coffee break 30 min

(3.3) 10:50-11:30

Koya Shimokawa, Saitama University, Japan
``On bounds for the minimum step number of knots in the simple cubic lattice''

(3.4) 11:30-12:10

Jun O'Hara, Tokyo Metropolitan University, Japan
``Slopes of double helices and geometric energies''

LUNCH 90 min

(3.5) 13:40-14:20

Eleni Panagiotou, National University of Athens, Greece
``The linking number of polymer chains in systems with periodic boundary conditi
ons''

(3.6) 14:20-15:00

Ken Millett, UC Santa Barbara, USA,
``Knot and Slip-knot Scaling in Random Walks''

coffee break 30 min

(3.7) 15:30-16:10

Attilio Stella, Universita di Padova, Italy
``Delocalization of topological entanglement in geometrically constrained polyme
rs''

(3.8) 16:10-16:50

Giovanni Dietler, Swiss Federal Institute of Technology in Lausanne,
Switzerland
``Circular DNA in 2 D: effects of different confinement geometries''

Poster session 16:50-17:30

Aug 4, Wednesday (9 talks)

(4.1) 9:00-9:40

Christophe Lavelle, Curie Institute, France
``Chromatin topological transitions''

(4.2) 9:40-10:20

Vincent Dion, Friedrich Miescher Institute, Basel, Switzerland
``The movement of DNA repair foci: implications for repair''

coffee break 30 min

(4.3) 10:50-11:30

Mario Nicodemi, University of Warwick, UK
``Models of higher-order chromatin organization in the cell nucleus''

(4.4) 11:30-12:10

Stephen Levene, University of Texas at Dallas, USA
``Mechanics and Energetics of Complex Nucleoprotein Assemblies''

Lunch 90 min

(4.5) 13:40-14:20

Vincent Croquette, Ecole Normale Superieure, Paris, France
``Using an hairpin to probe the replisome and to sequence DNA at the single mole
cule level''

(4.6) 14:20-15:00

Keir Neuman, NIH at Bethesda, USA
``Mechanisms of Chiral discrimination by type II topoisomerases''

coffee break 30 min

(4.7) 15:30-16:10

Hue Sun Chan, University of Toronto, Canada
``Consistent Rationalization of Topo II Actions''

(4.8) 16:10-16:50

Andy Bates, University of Liverpool, UK
``The ancestral role of ATP hydrolysis in type II topoisomerases - prevention of
 DNA double-strand breaks'

Aug 5, Thursday (8 talks)

(5.1) 9:00-9:40

Cristian Micheletti, International School for Advanced Studies,
 Trieste, Italy
``Coarse-grained simulations of confined DNA: geometrical and topological aspect
s''

(5.2) 9:40-10:20

Jiro Suzuki, High Energy Kasokuki Kenkyuu Kikou (KEK), Tsykuba, Japan
``Dimension of ring polymers in bulk studied by Monte-Carlo simulation''

coffee break 30 min

(5.3) 10:50-11:30

Andrzej Stasiak, University of Lausanne, Switzerland
``Effects of DNA topology on nuclear architecture''

(5.4) 11:30-12:10

Hirofumi Wada, YITP, Japan
``Topological flow in twisted open polymers: Plectoneme, belt-trick, and rotatio
nal friction''

Lunch 90 min

(5.5) 13:40-14:20

Naoko Kanaeda, Computational Biology Group,
Japan Atomic Energy Agency, Japan
``Free energy profile of nucleosomal DNA sliding''

(5.6) 14:20-15:00

Atsushi Ikai, Tokyo Institute of Technology, Japan
``A Geometrical Consideration during Forced Stretching of Helical Polypeptides''

coffee break 30 min

(5.7) 15:30-16:10

Joanna Sulkowska, UC San Diego, USA
``Slipknotting upon Native-like Loop Formation in a Trefoil Knot Protein''

(5.8) 16:10-16:50

Peter Virnau, Johannes Gutenberg-Universitaet Mainz, Germany
``Knots in proteins and polymers: some recent developments''

18:00 --banquet

Aug 6, Friday (4 talks)

(6.1) 9:00-9:40

Eric Rawdon, University of St. Thomas, USA
``Symmetry-breaking in cumulative measures of shapes of polymer models''

(6.2) 9:40-10:20

Tetsuo Deguchi, Ochanomizu University, Japan
``Two-point correlation functions of random knots and related topics''

coffee break 30 min

(6.3) 10:50-11:30

Atsushi Takano, Nagoya University, Japan
``Solution and bulk properties of highly-purified ring-shaped polystyrenes''

(6.4) 11:30-12:30

De Witt Sumners, Florida State University , USA
``DNA Knots: Theory and Experiments ''

12:30-12:35 Closing

Poster session:

P1 Andy Bates, University of Liverpool, UK

``The ancestral role of ATP hydrolysis in type II topoisomerases - prevention of DNA double-strand breaks''

P2 Naoko Kanaeda, Japan Atomic Energy Agency, Japan

``A chain of linked ring polymers in solution via Brownian dynamics''

P3 Kyoichi Tsurusaki, Kanagawa Industrial Technology Center, Japan

``Rubber elasticity theory driven by topological constraint''

P4 Cristian Micheletti, International School for Advanced Studies, Trieste, Italy

``Knotted vs. unknotted proteins: evidence of knot-promoting loops''

P5 Jonathan Stewart Mitchell, University of Leeds, UK

``A molecular dynamics study of DNA minicircles''

P6 Joanna Sulkowska, UC San Diego, USA

``Slipknotting upon Native-like Loop Formation in a Trefoil Knot Protein''

P7 Takahiro Sakaue, Kyushu University, Japan

``Fluctuating planar ring''

P8 Takuya Saito, Kyushu University, Japan

``Driven translocation of DNA''

P9 Hiroshi Murakami, Japan Atomic Energy Agency, Japan

``Terahertz spectroscopy of protein-containing reverse micelles''