

Scientific Program

I-CAMP•14 Summer School on Geometry and Topology in Soft Matter, Optics, and Biological Systems

Inter-Continental Advanced Materials for Photonics Summer School,

Cape Town, South Africa

June 15 - 29, 2014

I-CAMP•14 Chairs:

- [Ivan Smalyukh](#), University of Colorado at Boulder (United States)
- [Mark Bowick](#), Syracuse University (United States)
- [Jan Engelbrecht](#), Boston College (United States)
- [Izak Snyman](#), University of the Witwatersrand (South Africa)
- [Kristian Müller-Nedebock](#), University of Stellenbosch (South Africa)

June | [15](#) | [16](#) | [17](#) | [18](#) | [19](#) | [20](#) | [21](#) | [22](#) | [23](#) | [24](#) | [25](#) | [26](#) | [27](#) | [28](#) | [29](#) |

Sunday, June 15

13:00 - 15:30	Registration
15:30 - 16:00	<i>I-CAMP Welcome, Overview and Logistics</i> Organizers View Video Archive
16:00 - 17:00	PANEL Discussion View Video Archive
17:00 - 19:00	Informal get-together party/reception

Monday, June 16

9:00 - 9:30	Registration
Session 1	
9:30 - 10:30	<i>Introduction to Soft Matter</i> Mark Bowick, Syracuse University View Video Archive PDF
10:30 - 11:00	Break & Informal Discussions
11:00 - 12:00	<i>Statistical Mechanics of Liquid Crystals, I</i> Jonathan Selinger, Kent State University View Video Archive PDF
12:00 - 13:00	<i>Interplay of Topological Defects in Soft Matter and Optics, I</i> Ivan Smalyukh, University of Colorado Boulder View Video Archive PDF
13:00 - 14:30	Lunch
Session 2	
14:30 - 15:30	<i>Topological Defects in Soft Matter: Simulation Models and Applications, I</i> Robin Selinger, Kent State University View Video Archive

15:30 - 16:00 Break & Informal Discussions

16:00 - 17:00 *DNA Mechanics and its Application to DNA Protein Interactions*
Jean-François Allemand, École Normale Supérieure | [View Video Archive](#) | [PDF](#)

17:00 - 18:00 *Early Career Forum* | [View Video Archive](#)

Tuesday, June 17

Session 1

9:30 - 10:30 *Interplay of Topological Defects in Soft Matter and Optics, II*
Ivan Smalyukh, University of Colorado Boulder | [View Video Archive](#) | [PDF](#)

10:30 - 11:00 Break & Informal Discussions

11:00 - 12:00 *Introduction to Topological Defects*
Mark Bowick, Syracuse University | [View Video Archive](#) | [PDF](#)

12:00 - 13:00 *Topological Defects in Soft Matter: Simulation Models and Applications, II*
Robin Selinger, Kent State University | [View Video Archive](#)

13:00 - 14:30 Lunch

Session 2

14:30 - 15:30 *Liquid Crystal Colloids, Defects, and Knots, I*
Uroš Tkalec, Jožef Stefan Institute | [View Video Archive](#) | [PDF](#)

15:30 - 16:00 Break & Informal Discussions

16:00 - 17:00 *Statistical Mechanics of Liquid Crystals, II*
Jonathan Selinger, Kent State University | [View Video Archive](#) | [PDF](#)

17:00 - 19:00 Poster Session I

Wednesday, June 18

Session 1

9:30 - 10:30 *Fixing the Geometry and Topology in Networks of Polymers, I*
Kristian Müller-Nedebock, Stellenbosch University | [View Video Archive](#) | [PDF](#)

10:30 - 11:00 Break & Informal Discussions

11:00 - 12:00 *Topological Defects in Soft Matter: Simulation Models and Applications, III*
Robin Selinger, Kent State University | [View Video Archive](#)

16:00 - 17:00 *DNA Mechanics and its Application to DNA Protein Interactions, II*
Jean-François Allemand, École Normale Supérieure | [View Video Archive](#) | [PDF](#)

13:00 - 14:30 Lunch

Session 2

14:30 - 15:30 *Interplay of Topological Defects in Soft Matter and Optics, III*
Ivan Smalyukh, University of Colorado Boulder | [View Video Archive](#) | [PDF](#)

15:30 - 16:00 Break & Informal Discussions

16:00 - 17:00 *Liquid Crystal Colloids, Defects, and Knots, II*
Uroš Tkalec, Jožef Stefan Institute | [View Video Archive](#) | [PDF](#)

17:00 - 19:00 Excursions, etc.

Thursday, June 19

Session 1

9:30 - 10:30 *Liquid Crystal Colloids, Defects, and Knots, III*
Uroš Tkalec, Jožef Stefan Institute | [View Video Archive](#) | [PDF](#)

10:30 - 11:00 Break & Informal Discussions

11:00 - 12:00 *TBA*
Mark Bowick, Syracuse University | [View Video Archive](#) | [PDF](#)

12:00 - 13:00 *DNA Mechanics and its Application to DNA Protein Interactions, III*
Jean-François Allemand, École Normale Supérieure | [View Video Archive](#) | [PDF](#)

13:00 - 14:30 Lunch

Session 2

14:30 - 15:30 *Statistical Mechanics of Liquid Crystals, III*
Jonathan Selinger, Kent State University | [View Video Archive](#) | [PDF](#)

15:30 - 16:00 Break & Informal Discussions

16:00 - 17:00 *DNA Mechanics and its Application to DNA Protein Interactions, IV*
Jean-François Allemand, École Normale Supérieure | [View Video Archive](#) | [PDF](#)

17:00 - 18:00 *Outreach Forum* | [View Video Archive](#)

Friday, June 20

Session 1

9:30 - 10:30 *Interplay of Topological Defects in Soft Matter and Optics, IV*
Ivan Smalyukh, University of Colorado Boulder | [View Video Archive](#) | [PDF](#)

10:30 - 11:00 Break & Informal Discussions

11:00 - 12:00 *Topological Defects in Soft Matter: Simulation Models and Applications, III*
Robin Selinger, Kent State University | [View Video Archive](#)

12:00 - 13:00 *Statistical Mechanics of Liquid Crystals, IV*
Jonathan Selinger, Kent State University | [View Video Archive](#) | [PDF](#)

13:00 - 14:30 Lunch

Session 2

14:30 - 15:30 *DNA Mechanics and its Application to DNA Protein Interactions, V*
Jean-François Allemand, École Normale Supérieure | [View Video Archive](#) | [PDF](#)

15:30 - 16:00 Break & Informal Discussions

16:00 - 17:00 *Knots in Light and Fluids, I*
William Irvine, University of Chicago | [View Video Archive](#) | [PDF](#)

17:00 - 18:00 PANEL Discussion | [View Video Archive](#)

Saturday, June 21

Self-organized tours

Sunday, June 22

Self-organized tours

Monday, June 23

Session 1

9:30 - 10:30

Order and Frustration in Filamentous Matter, I

Greg Grason, University of Massachusetts Amherst | [View Video Archive](#) | [PDF](#)

10:30 - 11:00

Break & Informal Discussions

11:00 - 12:00

Design Principles in Photosynthetic Light Harvesting: Introductory Concepts

Tjaart Krüger, University of Pretoria | [View Video Archive](#) | [PDF](#)

12:00 - 13:00

Design Principles in Photosynthetic Light Harvesting: Excitons and Disorder

Tjaart Krüger, University of Pretoria | [View Video Archive](#) | [PDF](#)

13:00 - 14:30

Lunch

Session 2

14:30 - 15:30

Active Matter, I

M. Cristina Marchetti, Syracuse University | [View Video Archive](#) | [PDF](#)

15:30 - 16:00

Break & Informal Discussions

16:00 - 17:00

Knots in Light and Fluids, II

William Irvine, University of Chicago | [View Video Archive](#) | [PDF](#)

17:00 - 19:00

Poster Session II

Tuesday, June 24

Session 1

9:30 - 10:30

Active Matter, II

M. Cristina Marchetti, Syracuse University | [View Video Archive](#) | [PDF](#)

10:30 - 11:00

Break & Informal Discussions

11:00 - 12:00

Fixing the Geometry and Topology in Networks of Polymers, II

Kristian Müller-Nedebock, Stellenbosch University | [View Video Archive](#) | [PDF](#)

12:00 - 13:00

Order and Frustration in Filamentous Matter, II

Greg Grason, University of Massachusetts Amherst | [View Video Archive](#) | [PDF](#)

13:00 - 14:30

Lunch

Session 2

14:30 - 15:30

Optical Vortices and Laser Tweezers, I

Halina Rubinsztein-Dunlop, The University of Queensland | [View Video Archive](#)

15:30 - 16:00

Break & Informal Discussions

16:00 - 17:00

Knots in Light and Fluids, III

William Irvine, University of Chicago | [View Video Archive](#) | [PDF](#)

17:00 - 19:00 Excursions, etc.

Wednesday, June 25

Session 1

9:30 - 10:30 *Optical Vortices and Laser Tweezers, II*
Halina Rubinsztein-Dunlop, The University of Queensland | [View Video Archive](#)

10:30 - 11:00 Break & Informal Discussions

11:00 - 12:00 *Active Matter, III*
M. Cristina Marchetti, Syracuse University | [View Video Archive](#) | [PDF](#)

12:00 - 13:00 *Design Principles in Photosynthetic Light Harvesting: Experimental Developments*
Tjaart Krüger, University of Pretoria | [View Video Archive](#) | [PDF](#)

13:00 - 14:30 Lunch

Session 2

14:30 - 15:30 *Order and Frustration in Filamentous Matter, III*
Greg Grason, University of Massachusetts Amherst | [View Video Archive](#) | [PDF](#)

15:30 - 16:00 Break & Informal Discussions

16:00 - 17:00 *Knots in Light and Fluids, IV*
William Irvine, University of Chicago | [View Video Archive](#) | [PDF](#)

17:00 - 19:00 Reception

Thursday, June 26

African Institute for Mathematical Sciences

9:30 - 10:30 *Welcome and AIMS Introduction*
Organizers | [View Video Archive](#)

Session 1

10:30 - 11:00 *Active Matter, IV*
M. Cristina Marchetti, Syracuse University | [View Video Archive](#) | [PDF](#)

11:00 - 12:00 *Optical Vortices and Laser Tweezers, III*
Halina Rubinsztein-Dunlop, The University of Queensland | [View Video Archive](#)

12:00 - 13:00 *Design Principles in Photosynthetic Light Harvesting: Own Research Findings*
Tjaart Krüger, University of Pretoria | [View Video Archive](#) | [PDF](#)

13:00 - 14:30 Lunch

Session 2

14:30 - 15:30 *4 Student talks*
| [View Video Archive](#) | [PDF](#)

15:30 - 16:00 *Order and Frustration in Filamentous Matter, IV*
Greg Grason, University of Massachusetts Amherst | [View Video Archive](#) | [PDF](#)

16:00 - 17:00 *TBA*
Mark Bowick, Syracuse University | [View Video Archive](#) | [PDF](#)

17:00 - 18:00 Discussion on going to grad school abroad

Friday, June 27

African Institute for Mathematical Sciences

Session 1

9:30 - 10:30

Liquid Crystal Colloids, Defects, and Knots, IV

Uroš Tkalec, Jožef Stefan Institute | [View Video Archive](#) | [PDF](#)

10:30 - 11:00

Active Matter, V

M. Cristina Marchetti, Syracuse University | [View Video Archive](#) | [PDF](#)

11:00 - 12:00

Fixing the Geometry and Topology in Networks of Polymers, III

Kristian Müller-Nedebock, Stellenbosch University | [View Video Archive](#) | [PDF](#)

12:00 - 13:00

4 Student talks

| [View Video Archive](#) | [PDF](#)

13:00 - 14:30

Lunch

Session 2

14:30 - 15:30

Optical Vortices and Laser Tweezers, IV

Halina Rubinsztein-Dunlop, The University of Queensland | [View Video Archive](#)

15:30 - 17:00

PANEL Discussion | [View Video Archive](#)

17:00 - 17:30

Closing Remarks/Farewell

Saturday, June 28

9:30 - 11:00

History and Culture of South Africa

11:00 - 15:30

Tours

15:30 - 18:00

Tours/Departure

Sunday, June 29

9:30 - 11:00

Tours/Departure

11:00 - 12:00

Departure

updated - June 08, 2014