

## November 29, 2014 Saturday (Day 1)

Time	Lecture Theatre J	Lecture Theatre K
07:30 - 08:30 am	<i>Registration</i>	
08:30 - 08:45 am		<i>Welcome</i>
08:45 - 10:45 am		<b><u>Session 1</u></b> Photoalignment of azo-structures
10:45 - 11:15 am	<i>Coffee Break</i>	
11:15 - 12:45 am	<b><u>Session 1</u></b> Photoalignment of discotic materials and polymers	<b><u>Session 2</u></b> Liquid crystal devices based on photoalignment
12:45 - 02:00 pm	<i>Lunch: G/F Chinese Restaurant, HKUST</i>	
02:00 - 03:30 pm	<b><u>Session 2</u></b> Photopatterning devices	<b><u>Session 3</u></b> Photoalignment in azobenzene materials
03:30 - 04:00 pm	<i>Coffee Break</i>	
04:00 - 06:00 pm	<b><u>Session 3</u></b> Photopatterning devices: optical vortices and non-linearity	<b><u>Session 4</u></b> Photodeformation: theory and experiment
06:00 - 08:00 pm	<i>Welcome Reception and Poster Session</i>	

## November 30, 2014 Sunday (Day 2)

Time	Lecture Theatre J	Lecture Theatre K
08:30 - 09:00 am	<i>Registration</i>	
09:00 - 10:30 am		<b><u>Session 5</u></b> Photoalignment: materials and applications
10:30 - 11:00 am	<i>Coffee Break</i>	
11:00 - 12:30 pm	<b><u>Session 4</u></b> New LC Photoalignment: ferroelectric LC, fibers and optical gratings	<b><u>Session 6</u></b> Photoalignment: surface configurations
12:30 - 02:00 pm	<i>Lunch: UC-Bistro, HKUST</i>	
02:00 - 04:00 pm	<b><u>Session 5</u></b> Various mechanisms of photoalignment: vapor treatment, polymer brush and realignment, E/Z isomerisation	<b><u>Session 7</u></b> Polymer photoalignment: basics and applications
04:00 - 04:30 pm	<i>Coffee Break</i>	

04:30 - 06:00 pm	<b>Session 6</b> Special types of photoalignment: LC fibers, white OLED and electrical conductors	<b>Session 8</b> Photoalignment: physics and applications
06:00 - 07:00 pm	<i>Poster Session</i>	

### December 01, 2014 Monday (Day 3)

Time	Lecture Theatre J	Lecture Theatre K
08:00 - 08:30 am		Registration
08:30 - 10:30 am		<b>Session 9</b> Photoalignment methods
10:30 - 11:00 am		Coffee Break
11:00 - 01:00 pm		<b>Session 10</b> Molecular photomechanics
01:00 - 02:30 pm		<i>Lunch: G/F Chinese Restaurant, HKUST</i>
02:30 - 04:00 pm		<b>Session 11</b> New photoalignment materials
04:00 - 05:00 pm		<i>Laboratory visit</i>
06:00 - 09:30 pm		<i>* Bus departs at 06:00 pm* Banquet at The Clearwater Bay Golf &amp; Country Club</i>

### December 02, 2014 Tuesday (Day 4)

Time	Lecture Theatre J	Lecture Theatre K
09:00 - 10:00 am		<b>Closing &amp; Best Poster Awards Ceremony</b>
10:00 am - 06:00 pm		<i>*Bus departs to TST Public Pier at 10:00 am* Boat trip</i>

# PhoSM2014 Program – Invited Talks

## Lecture Theater K, HKUST

**November 29, 2014**

7:30 - 8:30 am Registration

### **Session 1: Photoalignment of azo-structures**

**Chair: Hoi Sing Kwok**

8:30 - 8:45 am Welcome by Prof. Joseph Lee, Vice-President for Research & Graduate Studies, HKUST

8:45 - 9:15 am **"Photofluidization in azobenzene materials: myth or reality?"**  
Prof. Marina Saphiannikova, Leibniz Institute of Polymer Research Dresden, Germany

9:15 - 9:45 am **"Modeling the light-induced surface patterning of azopolymer films: recent advances and open problems"**  
Prof Lorenzo Marrucci, Universita' di Napoli Federico II, Italy

9:45 - 10:15 am **"Photoinduced surface patterning in azopolymers: how can non-covalent intermolecular interactions serve us?"**  
Prof. Arri Priimagi, Department of Chemistry and Bioengineering, Tampere University of Technology, Finland

10:15 - 10:45 am **"Azo Dye Photoalignment Layers for Liquid Crystals Using a Thin Surface-Localized Polymer-Stabilization Layer"**  
Prof. Philip Bos, Kent State University, USA

10:45 - 11:15 am Coffee Break

### **Session 2: Liquid crystal devices based on photoalignment**

**Chair: Vladimir Chigrinov**

11:15 - 11:45 am **"Field-induced Bragg diffraction in polymer-stabilized liquid crystals with vertical alignment"** Prof. Liang-Chy Chien, Kent State University, USA

11:45 - 12:15 pm **"Liquid crystal diffractive optical elements utilized photoalignment"**  
Prof. Sergiy Valyukh, Linkoping University, Sweden

12:15 - 12:45 pm **"Liquid crystal patterns originating from structured alignment"**  
Prof. Kristiaan Neyts, Liquid Crystals and Photonics Group, Ghent University, Belgium

12:45 - 2:00 pm Lunch: G/F Chinese Restaurant, HKUST

### **Session 3: Photoalignment in azobenzene materials**

**Chair: Yanqing Lu**

2:00 - 2:30 pm **"Wavelength dependent photoalignment in azobenzene polymers"**  
Prof. P.S. Ramanujam, Technical University Denmark, Roskilde, Denmark

2:30 - 3:00 pm **"Light-induced complex surface patterning of azobenzene-containing polymers"**  
Prof. Antonio Ambrosio, Universita' di Napoli Federico II, Italy

- 3:00 - 3:30 pm **"Light-induced reordering in azo-dye films: models and mechanisms behind photoalignment"** Prof. Alexei D. Kiselev, Institute of Physics, National Academy of Sciences of Ukraine
- 3:30 - 4:00 pm Coffee Break
- Session 4: Photodeformation: theory and experiment**  
**Chair: Arri Priimagi**
- 4:00 - 4:30 pm **"Large amplitude photo-induced molecular migration in azo-materials"**  
Prof Jean-Michel Nunzi, Queen's University, Kingston, Canada
- 4:30 - 5:00 pm **"Fine structure of Surface Relief Gratings: experiment, Monte-Carlo simulations and stochastic modeling"**  
Prof Antoni Mitus, Wroclaw University of Technology, Poland
- 5:00 - 5:30 pm **"Light-induced reorientation of azobenzene chromophores as a driving force of material deformation"**  
Prof. Vladimir Toshchevnikov, Leibniz Institute of Polymer Research Dresden, Germany
- 5:30 - 6:00 pm **"Photothermal effect can work for light-controlled complex deformation and motion of polymers"**  
Prof. Yue Zhao, Université de Sherbrooke, Canada
- 6:00 - 8:00 pm Welcome Reception and Poster Session
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## November 30, 2014

- 8:30 - 9:00 am Registration
- Session 5: Photoalignment: materials and applications**  
**Chair: Kristiaan Neyts**
- 9:00 - 9:45 am **"LC photoalignment and photopatterning: past present and future"**  
Prof. Vladimir Chigrinov, The Hong Kong University of Science and Technology, HK
- 9:45 - 10:30 am **"Liquid crystal devices for THz applications based on photoalignment technology"**  
Prof. Yanqing Lu, Nanjing University, China
- 10:30 - 11:00 am Coffee Break
- Session 6: Photoalignment: surface configurations**  
**Chair: Marina Saphiannikova**
- 11:00 - 11:30 am **"The role of surface morphology in photo-alignment of liquid crystal on polymer and chalcogenide glass films"**  
Prof. Satyendra Kumar, Kent State University, USA
- 11:30 - 12:00 pm **"Modeling of the light beam induced patterning of a nematic disclination profile"**  
Prof. Slobodan Zumer, University of Ljubljana, Slovenia

12:00 - 12:30 pm **"Computer Simulation of Liquid Crystals close to a Surface"**  
Prof. Claudio Zannoni, Universita' di Bologna, Italy

12:30 - 2:00 pm Lunch: UC Bistro, HKUST

**Session 7: Polymer photoalignment: basics and applications**

**Chair: Lachezar Komitov**

2:00 - 2:30 pm **"Polarization Elements due to Bulk Photo-Alignment of LC Polymers"**  
Prof Joachim Stumpe, Fraunhofer Inst Appl Polymer Res IAP, Golm, Germany

2:30 - 3:00 pm **"Photoalignment of liquid crystalline polymer films with mesoscopic architectures"**  
Prof Takahiro Seki, Nagoya University, Japan

3:00 - 3:30 pm **"Liquid crystal photoalignment: from discovery to first industrial products"**  
Prof. Oleg Yaroshchuk, Institute of Physics, National Academy of Sciences of Ukraine

3:30 - 4:00 pm **"Dimerization behavior of new photo-alignment materials having cinnamate moiety"**  
Prof. Hiroshi Hasebe, Liquid Crystal Materials Technical Dept., DIC Corp., Japan

4:00 - 4:30 pm Coffee Break

**Session 8: Photoalignment: physics and applications**

**Chair: Claudio Zannoni**

4:30 - 5:00 pm **"Phase transition between helical and spatially homogeneous states of a ferroelectric liquid crystal caused by change of the order parameter of photo-anisotropic boundary surfaces"**  
Prof. Evgeny Pozhidaev, P.N. Lebedev Physical Institute of Russian Academy of Sciences, Russia

5:00 - 5:30 pm **"Cis-trans photoisomerization in nematic and cholesteric mesophases: physical chemistry, molecular models and novel implications"** Prof. Longin Lisetski, Institute for Scintillation Materials of STC, "Institute for Single Crystals", National Academy of Sciences of Ukraine

5:30 - 6:00 pm **"Electro-photo-rheology of liquid crystals"**  
Prof. Sergey Pasechnik, Moscow State University of Instrument Engineering and Computer Science, Russia

6:00 - 7:00 pm Poster Session

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## December 1, 2014

8:00 - 8:30 am Registration

### **Session 9: Photoalignment methods**

**Chair: Lorenzo Marrucci**

8:30 - 9:00 am **"Photophysical and photo-physicochemical molecular alignment methods"**

Prof. Atsushi Shishido, Tokyo Institute of Technology

9:00 - 9:30 am **"Directional Photofluidization and Micro/Nanostructural Evolution"**

Prof. Seungwoo Lee, Sungkyunkwan University (SKKU), Suwon, Republic of Korea

9:30 - 10:00 am **"Self-assembled photoalignment layer for LCD"**

Prof. Li Xuan, Chinese Academy of Sciences, China

10:00 - 10:30 am **"Plastic Photonic Memories"**

Prof. Riccardo Castagna, NEST, Istituto Nanoscienze CNR, Scuola Normale Superiore, Pisa, Italy

10:30 - 11:00 am Coffee Break

### **Session 10: Molecular photomechanics**

**Chair: Slobodan Zumer**

11:00 - 11:40 am **"Advances in Experimental Methods to Probe Surface Relief Grating Formation Mechanism in Photosensitive Materials"**

Prof. Svetlana Santer, University of Potsdam, Germany

11:40 - 12:20 pm **"Multiscale Optical Imaging of Complex Fields Based on the Use of Azobenzene Nanomotors"**

Prof. Jerome Plain, Univ Technol Troyes, CNRS, France

12:20 - 1:00 pm **"Photomolecular motions on azopolymer nano-objects: Toward new applications for photonics and biology"**

Prof. Régis Barillé, University of Angers, France

1:00 - 2:30 pm Lunch: G/F Chinese Restaurant, HKUST

### **Session 11: New photoalignment materials**

**Chair: Joachim Stumpe**

2:30 - 3:00 pm **"Photochromic molecules for all-optical switching"**

Prof. Jarosław Myśliwiec, Wrocław University of Technology, Poland

3:00 - 3:30 pm **"A new class of photoalignment materials"**

Prof. Lachezar Komitov, University of Gothenburg, Sweden

3:30 - 4:00 pm **"Photo-aligned Ferroelectric liquid crystals: a tool for modern photonics and displays"** Dr. Abhishek Srivastava, The Hong Kong University of Science and Technology

4:00 - 5:00 pm      Coffee Break and Lab Tour

6:00 - 9:30 pm      Dinner Banquet at the Clearwater Bay Golf & Country Club  
*\*Bus departs at 6:00pm\**

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## **December 2, 2014**

9:00 - 10:00 am      Closing and Best Poster Award Ceremony

10:00 am              Bus departure to Tsim Sha Tsui Public Pier for the boat trip

# PhoSM2014 Program – Oral Presentations

## Lecture Theater J, HKUST

**November 29, 2014**

7:30 - 8:30 am Registration

10:45 - 11:15 am Coffee Break

### **Session 1: Photoalignment of discotic materials and polymers**

**Chair: Phil Bos**

11:15 - 11:35 am **"Alignment Control of the Hydrophilic-Hydrophobic Lamellar Structure of Liquid Crystalline Random Copolymer"**

Mr. Daisuke Tanaka, Nagoya University, Japan

11:35 - 11:55 am **"Orienting passive polymer chains by light via supramolecular interactions"**

Dr. Jaana Vapaavuori, University of Montreal, Canada

12:45 - 2:00 pm Lunch: G/F Chinese Restaurant, HKUST

### **Session 2: Photopatterning devices**

**Chair: Liang-Chy Chien**

2:00 - 2:20 pm **"Photo-patterned liquid crystals for optical field control"**

Prof. Wei Hu, Nanjing University, China

2:20 - 2:40 pm **"An Optically Writable and Electrically Switchable Liquid Crystal Lens"**

Mr. Hung-Shan Chen, National Chiao Tung University, Taiwan

2:40 - 3:00 pm **"A bistable negative lens by integrating a polarization switch of ferroelectric liquid crystals with a passively anisotropic focusing element"**

Mr. Chia-Ming Chang, National Chiao Tung University, Taiwan

3:00 - 3:20 pm **"Bridge from volume to surface: A novel method for preparing patterned photoalignment devices"** Dr. Fan Fan, The Hong Kong University of Science and Technology

3:20 - 3:40 pm **"Light-Emitting Liquid Crystal Displays Based on an AIE Luminogen"**

Dr. Dongyu Zhao, Beihang University, China

3:40 - 4:00 pm Coffee Break

### **Session 3: Photopatterning devices: optical vortices and non-linearity**

**Chair: Abhishek Srivastava**

4:00 - 4:20 pm **"Generating Optical Vortices and Airy beams via Liquid Crystal Photoalignment Technology"** Miss Bingyan Wei, Nanjing University, China



- 4:20 - 4:40 pm **"Fast switchable and polarization independent optical vortex generated via blue phase liquid crystal fork gratings"** Mr. Shijun Ge, Nanjing University, China
- 4:40 - 5:00 pm **"Optical vortices generation and complex wavefronts control via photo-patterning of liquid crystals"** Miss Wei Ji, Nanjing University, China
- 5:00 - 5:20 pm **"Generating polarization selective complex optical vortices via director variant liquid crystals fork gratings"** Mr. Peng Chen, Nanjing University, China
- 5:20 - 5:40 pm **"Halogen-bonded Polymers for Photoinduced Optical Nonlinearity"**  
Mr. Matti Virkki, Tampere University of Technology, Finland
- 6:00 - 8:00 pm Welcome Reception and Poster Session
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## November 30, 2014

- 8:30 - 9:00 am Registration
- 10:30 - 11:00 am Coffee Break

### **Session 4: New LC Photoalignment: ferroelectric LC, fibers and optical gratings**

**Chair: Evgeny Pozhidaev**

- 11:00 - 11:30 am **"Photo-aligned photonic ferroelectric liquid crystal fibers"**  
Dr. Daniel Budaszewski, Warsaw University of Technology, Poland
- 11:30 - 12:00 pm **"Design, synthesis of new azo-based liquid crystals with "de Vries-like" phase transition"**  
Dr. Michal Kohout, ICT Prague, Czech Republic
- 12:00 - 12:30 pm **"Unusual optical-field-induced gratings in doped liquid crystals"**  
Prof. Ying Xiang, Guangdong University of Technology, China
- 12:30 - 2:00 pm Lunch: UC Bistro, HKUST

### **Session 5: Various mechanisms of photoalignment: vapor treatment, polymer brush and realignment, E/Z isomerisation**

**Chair: Satyendra Kumar**

- 2:00 - 2:20 pm **"Significant Improvement in Pretilt Angle Controllability by Polyimide Photo-alignment Layers by Alkyl-amine Vapor Treatment"**  
Dr. Kenji Sakamoto, National Institute for Materials Science, Japan
- 2:20 - 2:40 pm **"Relationship between Pretilt Angle and Molecular Orientation of Azo-PI Photo-alignment Layers Treated with Alkyl-amine Vapor"**  
Dr. Kiyooki Usami, Osaka Sangyo University, Japan
- 2:40 - 3:00 pm **"Pathways toward the Photoinduced Realignment System in Liquid Crystalline**

**Azobenzene Block Copolymer Thin Films"**

Ms. Masami Sano, Nagoya University, Japan

- 3:00 - 3:20 pm **"Liquid Crystalline Polymer Brush via Surface Segregation of Side-chain Azobenzene Block Copolymer"**  
Mr. Koji Mukai, Nagoya University, Japan
- 3:20 - 3:40 pm **"Changing E/Z isomerisation properties of azo-based liquid crystals"**  
Mr. Martin Cigl, ICT Prague, Czech Republic
- 3:40 - 4:00 pm **"The Role of Domain Structure Rearrangement in Photo-Orientation of Liquid-Crystalline Azobenzene Materials"**  
Dr. Alexey Bogdanov, Lomonosov Moscow State University, Russia
- 4:00 - 4:30 pm Coffee Break

**Session 6: Special types of photoalignment: LC fibers, white OLED and electrical conductors**

**Chair: Sergiy Valyukh**

- 4:30 - 4:50 pm **"Microstructured liquid crystal optical fiber with hollow core"**  
Dr. Denis Bogdanovich, ISTU, Russia
- 4:50 - 5:10 pm **"Light-Powered Healing of an Electrical Conductor: A Fast, Noninvasive, and On-Demand Approach for Wearable Devices"**  
Mr. Hong Suk Kang, KAIST, South Korea
- 6:00 - 7:00 pm Poster Session

## PhoSM2014 - Poster Presentations

1. Mr. Hong Suk Kang, KAIST, South Korea  
"3D Multi-Level micro/nanotexturing by controlled photofluidization of azopolymer and its Use in plasmonic application"  
  
Mr. Jangju Lee, Kyung Hee University, South Korea
2. Poster I: "Optimization of UV-irradiation Conditions for LC Alignment Layers with Different Photochemical Reactions"
3. Poster II: "Effects of Wet Cleaning of the Mechanically and Photochemically Treated Polyimide Alignment Layers on LC Alignment and LCD Properties"
4. Mr. Jae Woo Lee, Hongik University, South Korea  
"White Organic Light-Emitting Diodes by Using Hybridization of Quantum Dot Plates with Tri-Metal Layered Anodes"
5. Dr. Jaana Vapaavuori, University of Montreal, Canada  
"Top-down control over nanoscale self-assembled block copolymer patterns by light"
6. Prof. Jerzy Zielinski, Military University of Technology, Warsaw, Poland  
"Photoalignment – an alternative aligning technique for TN LCD"
7. Prof. Zbigniew Raszewski, Institute of Applied Physics MUT, Poland  
"Electric switchable diffraction gratings pool"
8. Prof. Oleg Yaroshchuk, Institute of Physics, National Academy of Sciences of Ukraine  
"Optically tunable and patternable color of cholesteric blue phase"
9. Prof. Marina Saphiannikova, Leibniz Institute of Polymer Research Dresden, Germany  
(on behalf of Prof. Jaroslav Ilnytskyi, Institute for Condensed Matter Physics, Lviv, Ukraine)  
"Azo-propellers as nanoscopic actuators in light-induced deformation of azobenzene polymer films"
10. Prof. Vladimir Kozenkov, Kripten Company, Moscow, Russia  
"Reversible one- or two- photon induced molecular reorientation and optical anisotropy in solid state photochemically stable layers"
11. Mr. Tao Du, HKUST, Hong Kong  
"Specially engineered liquid crystal polymer film for 100% polarizer"
12. Mr. Alwin Tam, HKUST, Hong Kong  
"Generation of Patterned Liquid Crystal Alignment for Pancharatnam Berry Phase Diffractive Lens"
13. Mr. Wanlong Zhang, HKUST, Hong Kong  
"Using Polarization Rotator to Generate Grayscale Images on Optically Rewritable E-Paper"
14. Mr. Jiatong Sun, HKUST, Hong Kong  
"Increasing the rewriting speed of ORW E-paper by electric field"
15. Mr. Liangyu Shi, HKUST, Hong Kong  
"Polymer Stabilized Electrically Suppressed Helix Ferroelectric Liquid Crystal"
16. Dr. Michael Lee, HKUST, Hong Kong  
"Nano-domains Formation on Photoalignment Thin Film by Dewetting"
17. Mr. Man Chun Tseng, HKUST, Hong Kong  
"Nano-structured Bistable Alignment Surface Nanoimprint Lithography and Photoalignment"

18. Ms. Su Pan, HKUST, Hong Kong  
"Improve contrast ratio of STN-LCD by photopatterning polarizer"
19. Ms. Ying Ma, HKUST, Hong Kong  
"Fast Switchable Ferroelectric Liquid Crystal Grating and Analysis for the Parameters"
20. Mr. Yang Shang, Beihang University, China  
"Synthesis of Cuprous Iodide (CuI) Superstructures and Their Doping for Inducing Vertical Alignment of a Nematic Liquid Crystal"
21. Mr. Yibin Jiang, HKUST, Hong Kong  
"Alignment of Colloidal Quantum Rods"
22. Miss Bingyan Wei, Nanjing University, China  
"Generating Optical Vortices and Airy Beams via Liquid Crystals Photoalignment Technology"
23. Mr. Shijun Ge, Nanjing University, China  
"Fast switchable optical vortex generator based on blue phase liquid crystal fork grating"
24. Mrs. Olga Semina, MGUPI, Russia  
"Methods of rotation of mono domain samples via photoalignment technology"
25. Dr. Alexander Dubtsov, Moscow State University of Instrument Engineering and Computer Science, Russia  
"Photoalignment of nematic liquid crystals in microdroplets"