

## Shape Anisotropic Materials and Their Application in Display Devices

**Over View:** Liquid crystals (Shape Anisotropic Materials) are materials that exhibit phases at the border between the solid and the liquid phase, balancing between disorder and order and between high and low symmetry, responding to external fields and adapting to boundary conditions.

Liquid crystals are important components in the living systems and are used extensively today as electro-optically active media in the vast majority of displays incorporated in a variety of electronic devices, ranging from electronic watches, cellular phones and laptops to video projectors, space light modulators and large area liquid crystal TV screens. Liquid Crystals made possible the revolutionary development of the Information Technology during the last two decades.

The course is aiming at giving a broad knowledge in the physics of liquid crystals and their applications in displays and photonic devices as well as highlighting their importance for living systems.

<b>Dates</b>	<b>19<sup>th</sup> February – 2<sup>nd</sup> March 2018</b>																						
<b>Location</b>	B.M.S College of Engineering, Bull Temple Road, Bangalore-560019																						
<b>Course schedule</b>	<table border="1"> <tr> <td>19/02/2018</td> <td>Introduction to Liquid Crystals</td> </tr> <tr> <td>20/02/2018</td> <td>Physical properties of Liquid Crystals</td> </tr> <tr> <td>21/02/2018</td> <td>Fundamentals of the continuum theory of Liquid Crystals</td> </tr> <tr> <td>22/02/2018</td> <td>Chiral Liquid Crystals</td> </tr> <tr> <td>23/02/2018</td> <td>Surface Stabilized Ferroelectric Liquid Crystals</td> </tr> <tr> <td>24/02/2018</td> <td>Alignment of Liquid Crystals</td> </tr> <tr> <td>26/02/2018</td> <td>Introduction to Liquid Crystal Display and Device (LCD) physics</td> </tr> <tr> <td>27/02/2018</td> <td>Non display applications of liquid crystals</td> </tr> <tr> <td>28/02/2018</td> <td>Hands on training: Fabrication of LCDs</td> </tr> <tr> <td>01/03/2018</td> <td>Liquid crystals and living matter</td> </tr> <tr> <td>02/03/2018</td> <td>Hands on training: Photoalignment techniques</td> </tr> </table> <p><b>Number of the participants for the course is limited to 60</b></p>	19/02/2018	Introduction to Liquid Crystals	20/02/2018	Physical properties of Liquid Crystals	21/02/2018	Fundamentals of the continuum theory of Liquid Crystals	22/02/2018	Chiral Liquid Crystals	23/02/2018	Surface Stabilized Ferroelectric Liquid Crystals	24/02/2018	Alignment of Liquid Crystals	26/02/2018	Introduction to Liquid Crystal Display and Device (LCD) physics	27/02/2018	Non display applications of liquid crystals	28/02/2018	Hands on training: Fabrication of LCDs	01/03/2018	Liquid crystals and living matter	02/03/2018	Hands on training: Photoalignment techniques
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<b>Fees</b>	<p>Participants from abroad : US \$500  Industry/ Research Organizations : Rs. 5,000  Faculty from other Institutions : Rs. 3,000  Students from other Institutions : Rs. 1,000</p> <p>The above fee includes all instructional materials, computer use for tutorials and assignments. Payment to be made through NEFT. The details are as follows:</p> <p><b>Name of Account Holder : Centre for Nano Materials and Displays</b>  <b>Account Number : 50407475176</b>  <b>Bank &amp; Branch : Allahabad Bank, Hanumanthnagar Branch</b>  <b>IFSC Code : ALLA0212011</b>  <b>MICR Code : 560010007</b></p> <p>The participants will be provided with accommodation based on availability on payment basis  <b>All course registrations will be processed via the national GIAN portal (<a href="http://www.gian.iitkgp.ac.in">www.gian.iitkgp.ac.in</a>), where Rs. 500/- one-time fee is payable in addition to the above amount.</b></p>																						

**Who can attend**

1. Executives, engineers and researchers from manufacturing, service and government organizations including R&D laboratories.
2. Students at all levels (BTech/MSc/MTech/PhD) or Faculty from reputed academic institutions and technical institutions.
3. This course emphasizes on General Physics and Optics and also on Information Technology especially with interest in Displays and Photonic Devices.

**Foreign Faculty**

**Prof. Lachezar Komitov**  
Department of Physics  
University of Gothenburg, Sweden

Professor Lachezar Komitov has completed his PhD from Bulgarian Academy of Science, 1987. He is Associate Member of Bulgarian Academy of Science since 1995. Full Professor of Physics, University of Gothenburg, Gothenburg, Sweden, since 2002. Author of more than 200 scientific papers and over 60 patents and pending patent applications. Invited speaker at a number of International Conferences, Symposiums and Meetings, University and Companies around the world. Supervisor of a number of PhD students. Served as referee for many highly ranked International journals. Professor Komitov is founder and co-founder of two companies dealing with LCDs.

Professor L Komitov is instrumental in several technology related invention and he received big industrial grant from NISSAN Chemicals in the area of aligning materials which is very crucial step for the future industries progress. His materials are unique and it is in commercial domain.

He is an expert researcher and active businessman, a unique combination range from academician to industry expert. His major research interest goes to shape anisotropic materials, liquid crystal displays, flexo electric coefficients etc.

**Host Faculty:**

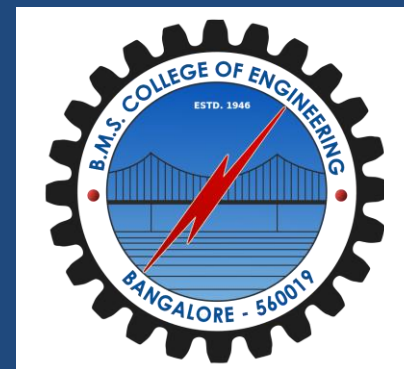
**Dr. Gurumurthy Hegde,**

Centre for Nano-materials & Displays,  
BMS R & D  
B.M.S College of Engineering.  
Course Registration: <http://www.gian.iitkgp.ac.in>

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