

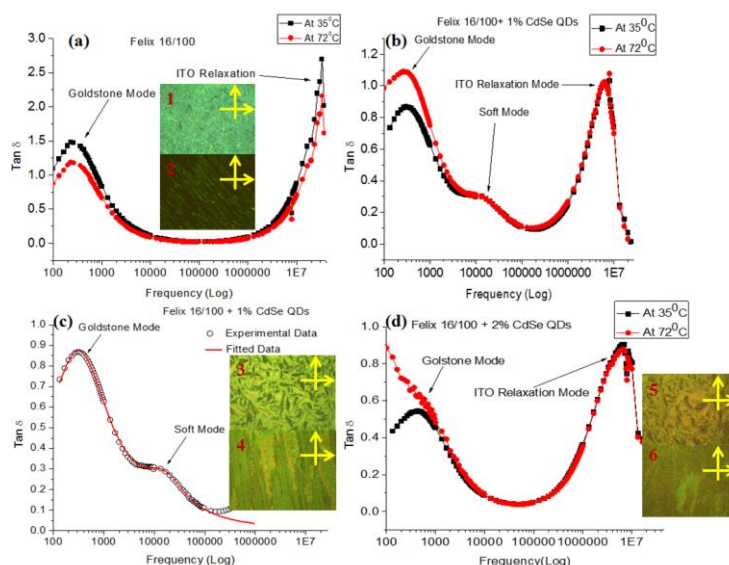
# Role of quantum dots in liquid crystals and their applications

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The properties of mesogenic materials may be tuned using nanoaterials. These nanomaterials may be carbon nanotubes, nanoparticles and quantum dots. We have explored the dispersion of these quantum dots with liquid crystals (LCs) and found some interesting results which are very important from fundamental point of view and also for their applicability in devices. During our experimental studies on various LCs doped with quantum dots we have observed concentration dependence of transition temperature, dielectric parameters, spontaneous polarization and rotational viscosity etc. In the present talk various aspects of these dielectric and electro-optical properties will be discussed for doped LCs as a function of temperature, frequency and the dopent concentration in the light of guest host interactions. Several new aspects which came into the light (like CdSe quantum dots induced soft mode) and few new concepts arising out of experimental results will also be discussed. The talk will also cover the changes taking place in the vital parameters due to doping of quantum dots and their probable impact on future applications of LCs.



## References

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## **Speaker Biography**

[Rajiv Manohar](#) received M.Sc. degree in Physics from University of Lucknow in 1992, and Ph.D. degrees in Liquid Crystals from University of Lucknow, India in 2000. Since 1996, he has been with the Department of Physics, University of Lucknow, Lucknow, where he is currently a Professor. He has initiated and successfully developed a fully functional self sustained experimental laboratory for Liquid crystal characterization and mainly contributed on doped liquid crystals. The enhanced optical self alignment and optical switching of their dye doped ferroelectric and nematic liquid crystal systems have received much attention of researchers. He has been collaborating with scientists at Military University of Technology, Warsa, Poland, National Physical Laboratory, New Delhi and other prestigious institutes. He has been awarded Young Scientist Award by, UP Govt. in year 2003, Young Scientist Award by Indian Science Congress association in 2002 and University Grants Commission, India Research Award 2014-16.