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## Academic Background

- Ph.D., **Department of Physics, [IISER Pune](#)**, India (2008-2014)  
“Photo-physical Properties of Single Semiconductor Nanostructures Using Fluorescence Correlation Spectroscopy”  
M.Sc. in Physics, **[IIT Madras](#)**, Chennai, India (2003-2005)
- B.Sc. (Maths, Physics, Chemistry), **Andhra University, India** (2000-2003)

## Research Interests

Free Space Optical Communication, Optics based instrumentation, Biophotonics, Scanning Probe Microscopy, Nanomechanics

## Teaching

Fiber optics, Free Space optical communication, Nonlinear optics

## M.Tech Dissertations

S. No	Name of the M.Tech. students	Thesis Dissertation	Degree awarded date
1	<b>Anirban Mukhopadhyay</b>	<b>Study of scattering properties of sub-wavelength structures from the perspective of toroidal multi-poles</b>	<b>May 2018</b>
2	<b>Vasanth Kumar R</b>	<b>Development of Free Space Optical Communication with multiple nodes</b>	<b>May 2019</b>
3	<b>Umesh Kumar</b>	<b>BER performance of underwater wireless optical communication</b>	<b>May 2020</b>
4	<b>Chinchu Joseph</b>	<b>Design and Implementation of a visible light communication system for indoor environment</b>	<b>May 2020</b>
5	<b>Keshav Mehra</b>	<b>Prototype development of automatic collision avoidance of self docking for ships at harbor</b>	<b>May 2020</b>

6	Aditya Roy	Implementation of various modulation schemes for Free space optical communication	May 2020
7	Soumit Banerjee	Simulation of various modulation techniques with RSA algorithm for secure data transmission in free space optical communication	May 2021
8	Shivam Mishra	Simulation of orthogonal frequency division multiplexing OFDM techniques and effect of Doppler shift on OFDM in	May 2021
9	Mayana Yousuf Ali khan	Simulation and feasibility tests of atmospheric turbulence for different modulation schemes in FSOC	May 2021
10	Rashmikanta Mantry	AstroSat observation of black hole X-ray binary transient MAXI J1348-630	May 2021
11	Umakant D	Development of FPGA based correlation unit and LabVIEW based automation for data acquisition for single molecule technique (FCS).	Ongoing

## Ph.D Dissertations

S. No	Name of the M.Tech. students	Thesis Dissertation	Degree awarded date
1	Sagar Kamble	Investigation of biophysical and nano-mechanical properties of single and multi-component supported lipid bilayers	Submitted 2022

## Publications

17	P.R. Adhyapak, S. V. Panchal, A.V.R. Murthy, Cholesterol induced asymmetry in DOPC bilayers probed by AFM force spectroscopy, <i>Biochim. Biophys. Acta - Biomembr.</i> 1860 (2018) 953–959. doi:10.1016/j.bbamem.2018.01.021.
16	A.V.R. Murthy, F. Guyomarc'h, G. Paboeuf, V. Vié, C. Lopez, Cholesterol strongly affects the organization of lipid monolayers studied as models of the milk fat globule membrane: Condensing effect and change in the lipid domain morphology, <i>Biochim. Biophys. Acta - Biomembr.</i> 1848 (2015) 2308–2316. doi:10.1016/j.bbamem.2015.06.014.
15	A.V.R. Murthy, F. Guyomarc'h, C. Lopez, Cholesterol Decreases the Size and the Mechanical Resistance to Rupture of Sphingomyelin Rich Domains, in Lipid Bilayers Studied as a Model of the Milk Fat Globule Membrane, <i>Langmuir.</i> 32 (2016) 6757–6765. doi:10.1021/acs.langmuir.6b01040.
14	A.V.R. Murthy, F. Guyomarc'h, C. Lopez, The temperature-dependent physical state of polar lipids and their miscibility impact the topography and mechanical properties of bilayer models of the milk fat globule membrane, <i>Biochim. Biophys. Acta - Biomembr.</i> 1858 (2016) 2181–2190. doi:10.1016/j.bbamem.2016.06.020.

13	A.V.R. Murthy, P. Patil, S. Datta, S. Patil, Photoinduced Dark Fraction Due to Blinking and Photodarkening Probability in Aqueous CdTe Quantum Dots, <i>J. Phys. Chem. C.</i> 117 (2013) 13268–13275. doi:10.1021/jp402792f.
12	S. Kamble, S. Patil, M. Kulkarni, V. Ramana, M. Appala, Interleaflet Decoupling in a Lipid Bilayer at Excess Cholesterol Probed by Spectroscopic Ellipsometry and Simulations, <i>J. Membr. Biol.</i> (2020). doi:10.1007/s00232-020-00156-9.
11	C. Joseph, A.V.R. Murthy, Design and Implementation of a Visible Light Communication System for Indoor Environment, in: <i>ICOL-2019</i> , Springer, Singapore, 2021: pp. 793–797.
10	S. Kamble, S. Patil, V.R.M. Appala, Nano-mechanical characterization of asymmetric DLPC/DSPC supported lipid bilayers, <i>Chem. Phys. Lipids.</i> 234 (2021) 105007.
9	S. Banerjee, Simulation of a secure optical communication system using different optical modulation schemes coupled with Rivest-Shamir-Adleman algorithm, (2021) 1–5.
8	S. Kamble, S. Patil, M. Kulkarni, Colloids and Surfaces B: Biointerfaces Spectroscopic Ellipsometry of fluid and gel phase lipid bilayers in hydrated conditions, <i>Colloids Surfaces B Biointerfaces.</i> 176 (2019) 55–61. doi:10.1016/j.colsurfb.2018.12.061.
7	P.S. Balaji, A.V.R. Murthy, N. Tiwari, S. Kulkarni, Fluorescence Correlation Spectroscopy of Gold Nanoparticles, <i>Spectrosc. Lett.</i> 45 (2012) 22–28. doi:10.1080/00387010.2011.588645.
6	A.V.R. Murthy, M. Goel, S. Patil, M. Jayakannan, Probing the Role of Chain Length on the Diffusion Dynamics of pi-Conjugated Polymers by Fluorescence Correlation Spectroscopy, <i>J. Phys. Chem. B.</i> 115 (2011) 10779–10788. doi:10.1021/jp203978v.
5	A.V.R. Murthy, F. Guyomarc'h, C. Lopez, Palmitoyl ceramide promotes milk sphingomyelin gel phase domains formation and affects the mechanical properties of the fluid phase in milk-SM/DOPC supported membranes, <i>Biochim. Biophys. Acta - Biomembr.</i> 1860 (2018) 635–644. doi:10.1016/J.BBAMEM.2017.12.005.
4	S. Kamble, S. Patil, M. Kulkarni, A.V.R. Murthy, Spectroscopic Ellipsometry of fluid and gel phase lipid bilayers in hydrated conditions, <i>Colloids Surfaces B Biointerfaces.</i> 176 (2019) 55–61. doi:10.1016/j.colsurfb.2018.12.061.
3	J.R. Dave, A.M. Dewle, S.T. Mhaske, P.T. Phulpagar, V.L. Mathe, S.E. More, A.A. Khan, A.V.R. Murthy, S.S. Datar, A.J. Jog, M. Page, G.B. Tomar, Hydroxyapatite nanorods loaded with parathyroid hormone (PTH) synergistically enhance the net formative effect of PTH anabolic therapy, <i>Nanomedicine Nanotechnology, Biol. Med.</i> 15 (2019) 218–230. doi:10.1016/J.NANO.2018.10.003.
2	C. Chavan, S. Kamble, A.V.R. Murthy, S.N. Kale, Ampicillin-mediated functionalized gold nanoparticles against ampicillin-resistant bacteria: Strategy, preparation and interaction studies, <i>Nanotechnology.</i> 31 (2020) 215604. doi:10.1088/1361-6528/ab72b4.

**1**

S. Kamble, S. Patil, V.R.M. Appala, Nano-mechanical characterization of asymmetric DLPC/DSPC supported lipid bilayers, Chem. Phys. Lipids. 234 (2021) 105007. doi:10.1016/j.chemphyslip.2020.105007.

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