CURRICULUM VITEA
Prof Prabhakar Dongre

1 General information :

Name in full	**PRABHAKAR MANIKARAO DONGRE**
Fathers Name	Manikarao Dongre
Sex	Male
Present post	Professor & Head, Dept. of Biophysics
Organization	University of Mumbai, Mumbai Maharashtra, India
Address for communication	Department of Biophysics, University of Mumbai, Vidyanagari, Santacruz (E), Kalina, Mumbai 400098, INDIA
Permanent Address	At post Sawargaon (Hadap), Ta Dist Jalna, India 431203
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Telephone numbers for contact including STD Code	8369831994, 9969051198
Office	8369831994, 9969051198
Residence	8369831994, 9969051198
Mobile	8369831994, 9969051198
Indian languages (Read, Ppeak & Write)	Maraathi, Hindi, English
Date of Birth	Sixth June nineteen sixty two

2. Education qualifications

Examination / Degree	Board / University/ Institute	Subjects / Specialization	Month & Year of Passing	Division / CGPA	Marks in %
Secondary School Certificate	Aurangabad	General	1979	Second	58.14
Higher Secondary School Certificate	Aurangabad	Phy,Chem,Bio	1984	Pass	38.83
Graduation	Marathwada University, Aurangabad	Physics, Chemistry, Electronics	1987	Second	53.10
Post Graduation	Dr Babasaheb Ambedkar Marathwada University, Aurangabad	Biophysics	1995	First	62.90

Ph.D.	------do-------	Biophysics	1996	-	-

3. Experience in the field of Higher Education:

University / Institution*	Post	From	To	Total (in years and months)
Govt Institute of Science	Lecturer	08/08/1995 06/08/1996	30/03/1996 21/01/1997	14 months
MIMSR Medical College, Latur	Lecturer (Asstt Prof)	22/01/1997	28/02/2001	4 year 01 month
MIMSR Medical College, Latur	Sr Lecturer	01/03/2001	28/02/2002	1 year
MIMSR Medical College,	Associate Professor	01/03/2002	01/05/2006	4 year 2 month
University of Mumbai, Mumbai	Reader/ Associate Professor	02/05/2006	02/05/2009	3 years
University of Mumbai, Mumbai	Professor	03/05/2009	Till date	12 years 1 month
Total Experience				25 years 06 month

4. Professional training:

a. Auditing of Quality Management systems as per ISO 9001-2001 (2003)
b. Radiological safety Aspects in the research applications of Ionizing Radiation (2009)
c. Radiation Safety Officer, approved by Atomic Energy Regulation Board, Govt of India

5. Experience on various academic and professional statutory bodies:

Sr.No.	Institution*	Statutory forum / authority and position	From	To	Total (in years and months)
1	University of Mumbai, Mumbai	Member of Academic council	2008 2014	2011 2017	06 years
2	University of Mumbai, Mumbai	Senate member	2015	2017	02 years
3	University of Mumbai, Mumbai	Chairperson, Board of Studies (Biophysics)	2008 2014 May 2019	2011 2017 Till date	O7 years
4	University of Mumbai, Mumbai	Research Recognition committee in Biophysics	2008	Till date	12 years
5	Garware Institute of Career Development & Education (Autonomous centre of University of Mumbai, Mumbai)	Member of Advisory committee	Sept 2010	Aug 2015	05 years

6	University of Mumbai, Mumbai	Member, Board of Studies in Nanoscience & Nanotechnolgy	1st April 2017	5th May 2019	02 years
7	UM DAE Centre for Excellence in Basic Sciences, Mumbai	Academic Board Member	May 2016 2018	2018 Till date	04 years
8	University of Mumbai, Mumbai	Member, Faculty of Science	2008 2014	2011 2017	06 years
9	University of Mumbai, Mumbai	Member, Board of University Teaching & Research	2008 2014	2011 2017	06 years
10	University of Mumbai, Mumbai	Member, Purchase committee	2012	2014	02 years
11	University of Mumbai, Mumbai	Member, Campus Development Committee	2015	2017	02 years
12	SRT Marathwada University, Nanded	Member, Board of studies in Medical Physics	June 2018	Aug 2020	02 year
13	Mithibai College (Autonomous), Mumbai	Member, Academic council (VC nominee)	April 2018	Till date	03 years
14	Kelkar Vaze College, Mumbai	Member, Academic council (VC nominee)	26th Feb 2020	Till date	1 year 04 month
15	Sophiya Women's College (Autonomous), Mumbai	Member of Board of Studies in Physics	Aug 2019	Till date	2 years
16	Mahatma Gandhi Central University, Motihari, Bihar	Member of Board of studies in Physics	July 2020	Till date	01year
17	University of Mumbai	Member of Standing committee	Nov 2020	Till date	01 year
18	KV Pendharkar College (Autonomous) Dombivali, Mumbai	Member of Academic council (VC nominee)	May 2021	Till date	06 months
19	University of Mumbai	Member of Board of Innovation, Incubation and linkages	March 2021	Till date	08 month
20	NMIMS Deemed University, Mumbai	Member of Board of Studies in Biological sciences	Aug 2021	Till date	

6. Experience with various international bodies:

Sr.No.	Name of the international body	Nature of experience
1	Member of International Union of Pure and Applied Biophysics	The International Union of Pure and Applied Biophysics (IUPAB) established in 1961, **Objectives:**

	(IUPAB)- INSA, New Delhi (2012-2016)	To organize international cooperation in Biophysics and promote communication between the various branches of Biophysics and allied subjects To encourage with each adhering body cooperation between the societies that are interested in the advancement of biophysics in all its aspects. I worked with IUPAB from 2012-2016, encouraged to various department in the Universities/ Institutes in India for organization of workshop/ conferences in frontiers areas of biophysics, developing teaching-training materials for biophysics students.
2	Vice President , Indian Biophysical Society (2013-2018)	The Indian Biophysical Society (IBS), founded in 1965 and registered under the Act XXVI of 1961 at Kolkata with its office at Saha Institute of Nuclear Physics (SINP), has grown over the years. The interdisciplinary nature of the society attracted scientists from not only Physics, Chemistry and Biology, but also from other related areas too such as Biotechnology, Bioinformatics and Medicine. IBS gives many awards to young and established scientists to promote biophysics in India, Being a vice president of society, promoted research and development activities, career related activities, suggested to organize workshop/ conference on frontier areas of Biophysics.
3	President, International Society of Science and Technology (ISST), Mumbai	As president of ISST, organized student centric activities like workshop, conferences / symposia in association with various colleges in Maharashtra at national and International level. Three conferences organized in foreign countries such as Srilanka, Thailand & Mauritius

7. Honors & awards:

S. No	Name of the award / Fellowship	Elected / Honorary Fellow	Awarded by	Year of award
1	Best Research & Academician (2017)	-	Mauritius Marathi Mandali, Mauritius	2017
2	Best Teacher Award (2019)	-	University of Mumbai	2019
3	Best Faculty of the year (2019)	-	Computer Society of India, Mumbai Chapter	2019
4	Best Research Publication Award (2019)	-	Biophysical Society of Japan	2019
5	Best Research & Academician	-	*Bharatmata Bahu-uddeshiya Sanstha, Naldurg*	2011
6	GSBAS fellow	Elected fellow	*Global Society for Basic and Applied Sciences (GSBAS) Mumbai, India*	2016

7	FISST fellow	Elected Fellow	*Internationals Society for Science and Technology, Mumbai*	2010

8. **Research project executed**:

Sr. No.	Title of the project	Project Value (Rs.in lakh)	Granting agency	Date of start	Date of Completion
1	Studies on oxidative stress of various cancer patients undergo Chemotherapy and Radiotherapy and to evaluate those as surrogate markers for immediate clinical response	12.47	DAE BRNS Govt of India	March 2010	March 2013
2	Development of bioinformatics database resource for radio modifiers and make it available on internet t user community	7.96	DAE BRNS Govt of India	04/03/2010	June 2014
3	Design and Development of packaging for Dry Electrodes for Bio-potential measurement and their (Co-Investigator)	9.70	DRDO, Govt of India	July 2015 1 year	June 2016
4	A biophysical study of homeopathy formulation	1.544	Life Force Trust (NGO)	July 2018	Progress
5	Common Research scheme of Mumbai University under DST PURSE scheme (1st Phase) Amount was received under my supervision	18.00	DST PURSE scheme	2010	2013
6	Common Research scheme of Mumbai University under DST PURSE scheme (2nd Phase) Project was submitted under my supervision	60.00	DST PURSE scheme	2016	2019
	Total (Lakhs)	**109.674**			

9. Research work (Summary)

Targeted drug delivery- an advanced and precision therapeutic approach

Targeted drug delivery (TDD) is an advanced and smart method of delivering drugs to the patients in a targeted sequence that increases the concentration of delivered drug only at the targeted body part of interest (organs/tissues/cells). This will in turn enhance efficacy of treatment by reducing side effects and the required dose of the drug. TDD ensures a certain defined minimally required constant amount of a therapeutic agent for a prolonged period of time to a targeted diseased area within the body. This helps maintain the required plasma and tissue drug levels in the body thereby avoiding any damage to the healthy tissue via the drug.

Recently nanomaterials are plying very crucial role in TDD system, these materials exhibit unique structural, chemical, mechanical, magnetic, electrical, and biological properties, as results they have become well appreciated due to the fact that nanostructures could be utilized as delivery agents by encapsulating drugs or attaching therapeutic drugs and deliver them to target tissues more precisely with a controlled release.

My research group has developed unique nano-bio carrier for precise drug delivery system to target the cells, for these purposes we chosen metallic silver, gold and zinc nanomaterials. We have developed our own method (brief modifications) for synthesis of these nanostructures. We systematically synthesized (chemically & physically) and characterised this material using various physical techniques like XRD, SEM, TEM, Dynamic Light Scattering, Raman Spectroscopy, SPR, FTIR various UV visible spectroscopy. Similarly, we chosen some proteins (Bovine Serum Albumin, Human Serum Albumin, alpha and beta lactoglobulins) to conjugate for these nanomaterials, alpha and beta lactoglobulin were separated from bovine milk and characterized in our laboratory. We quantitively characterised (structurally and functionally) the interaction of these proteins with various nanoparticles using biophysical approaches like fluorescence spectroscopy, DLS, FTIR, UV Visible spectroscopy, ITC, Circular Dichroism, Raman Spectroscopy, Fluorescence Microscopy, AFM etc. Similarly, isotope binding with protein-nanoparticles for distribution of particles in various organ using animal model study. We successfully uploaded some anticancer drugs that used in clinical practice (Paclitaxel, cisplatin, curcumin etc) on protein-nanoparticles conjugates. Various pharmacological parameters addressed under this investigation.

We proposed that the incorporating drug delivery strategies into drug development processes may facilitate the development of improved therapies. Specifically, an anticancer drug could then successfully reach the tumour at therapeutic doses, engage its target to actively inhibit a pro-oncogenic cellular mechanism and avoid effects in healthy tissues that may result in dose-limiting toxicities.

Our group is able to establish nanoparticle-based snake venom inhibitor / nanoparticles - anti snake venom (Nano-ASV). The important features of Nano-ASV are bio-compatible, low dose requirement, simple storage requirement, easy production and cost effective etc. Animal test of Nano-ASV is in progress. We believe that this is first kind of innovation in nanomedicine.

A quality of research papers published in internationally repute journals like Drug Delivery, International journal of Biological macromolecules, Journal of fluorescence , Colloids and Surfaces B: Biointerfaces, Journal of alloys and compounds, Journal of applied clinical medical physics , Journal of Biomolecular

Structure and Dynamics, Sensors and Actuators B: Chemical, Journal of Nanoparticle Research, The Protein Journal, BMC cell biology, Journal of Radiation Research and Applied Sciences, Journal of Luminescence, Journal of pharmaceutical analysis, Dyes and Pigments , current science, RSC advances etc. More than 50 research papers published on the above work , many of the research papers have been cited more than 100 citations. Four Indian patent filled on the above research work, the patents are under examination. Our research has been highly appreciated in various national and international conferences, we received recognition in the form of gold, silver medals.

One of the most important outcome of the research is enable to develop kit for the preparation of silver and gold nanoparticle, which has been patented. This kit could be used for the training and teaching to undergraduate and post graduate students.

10: a) <u>Successfully guided PhD students</u>:

Sr.No.	Student	Thesis title	Period of Guideship	Ph.D awarded in
1	Jessy John M	A study of interaction of nanoparticles with model biological systems using biophysical approaches	31 /06/2009 – June 2014	June 2014
2	Dayanand Sharma	Image guided intensity modulated radiotherapy: A comprehensive Dosimetric and Radiobiological study.	05/04/2010- Oct 2014	Oct 2014
3	Vekatramanan Rao	Characterization of flagellar associated protein 174 (FAP 174) from green chlorophyte Chlamydomonas reinharditii.	08/06/2012- Jan 2016	Jan 2016
4	Priyanka Pal	Studies on consequences of molecular crowding for DNA and reconstituted nucleohistones.	15/01/2014 – May 2017	May 2017
5	Bipin Khade	Investigation of structure-function relationship of model protein in presence of metallic Nanoparticles	30/5/2013- Jan 2017	Jan 2017
6	Aditi Lohot	Study of electrical activity of Human Brain and Heart subject who practise meditation	28/08/2014 – May 2017	May 2017
7	Vrushali Hingane	In vitro structure – function based assays of snake venom in presence of nanoparticles (NPs)	24/06/2013 – June 2018	June 2018
8	Sharda Sawant	A study of desmosomal and Hemidesmosomal adhesion Junctions in neoplastic progression of human oral cancer oral cancer using transmission electron microscopy	15/09/2016 - July 2019	July 2019

b) **PhD students working**

Sr No	Name of the Scholar	Title of thesis	Date of Registration	Date of declaration
1	Mr Mahesh Sawant	Biophysical studies of protein-nanoparticle interactions	05/04/2016	In Progress
2	Mr Manik Waghmare	A study of albumin-nanoparticle complex with model glycoprotein using biophysical approaches for development of targeted drug delivery	12/07/2017	In progress
3	Ms Dhanashri Pangam	*In vitro* Identification of protein-nanoparticles corona for Inhibition of Snake Venom Activity	04/11/2017	In Progress
4	Mr Vinod Jaiswal	The study of physic-chemical aspects of nanoparticle protein corona –relevance in targeted drug delivery.	07/06/2017	In Progress
5	Ms Niyati Mudliar	Photophysical investigation of molecular probe for Heparin and Heparin binding protein	21/11.2017	In Progress

11. Research Publications/ National / International / Patents filled/ Proceeding publications:

a) Publications (International Journals)

Sr No	Title of the paper	Name of the international Journal	Month & Year of Publication
1	Neha Kumari, V L Mathe, **P M Dongre** et al. BSA-drug-ZnO-PEI conjugates interaction with glycans of gp60 endothelial cell receptor protein for targeted drug delivery: a comprehensive spectroscopic study	Journal of Biomolecular Structure and Dynamics, 1-17	2021
2	Priyanka Pal, **P M Donre**, R Shaha et al. Biophysical techniques revealed insight of potentized solvent of ethanol-water interface,	Romanian J Biophysics	2021
3	J Pendharkar, Manik Waghmare, **P M Dongre** et al. Photo-excitation nature of aromatic amino acids under electric field: a fluorescence spectroscopy study	Romanian J Biophysics	2021
4	Waghmare Manik, **P M Dongre** et al	Journal of Biomolecular	2021

	β-Lactoglobulin-gold nanoparticles interface and its interaction with some anticancer drugs–an approach for targeted drug delivery,	Structure and Dynamics,	
5	Bipin Khade, **P M Dongre**, Adsorption of α-amylase and Starch on Porous Zinc Oxide Nanosheet: Biophysical Study,	Food Biophysics	2021
6	NH Mudliar, AM Pettiwala, **PM Dongre**, PK Singh, A Heparin based dual ratiometric sensor for Thrombin,	International Journal of Biological Macromolecules	2021
7	NH Mudliar, AM Pettiwala, **PM Dongre**, PK Singh, An anionic polyelectrolyte induced aggregate assembly of Thioflavin-T: A prospective platform for Protamine Sensing	International Journal of Biological Macromolecules	2020
8	NH Mudliar, **PM Dongre**, PK Singh A molecular rotor based dual ratiometric sensor for heparinase , ,	Dyes and Pigments, 108528	2020
4	VD Jaiswal, **PM Dongre** Biophysical interactions between silver nanoparticle-albumin interface and curcumin	Journal of Pharmaceutical Analysis.	2020
9	M N Waghmare, TS Qureshi, AN Shaikh, BS Khade, C Murali Krishna, **PM Dongre** Functionalized Alpha-lactalbumin Conjugated with Gold Nanoparticle for Targeted Drug Delivery	ChemistrySelect 5 (6), 2035-2049	2020
10	N Kumari, VL Mathe, **PM Dongre** Albumin nanoparticles conjugates binding with glycan- a strategic approach for targeted drug delivery	International Journal of Biological Macromolecules,	2019
11	M Waghmare, B Khade, P Chaudhari, **P Dongre** Multiple layer formation of bovine serum albumin on silver nanoparticles revealed by dynamic light scattering and spectroscopic technique	***Journal of Nanoparticle Research*** 20 (7), 185	2018
12	**P M Dongre** and Amruta Joshi A systematic organization of bioinformatics database of radiosensitizers and radioprotectors	Journal of Radiation and cancer research	
13	Hingane Vrushali, Dhanshri Pamgam and **Prabhakar Dongre** Inhibition of crude viper venom action by silver nanoaprticles-A biophysical and Biochemical study.	Biophysics and Physicobiology, doi 10.2142/biophysico.15.0_00	2018
14	S Sawant, H Dongre, C Ahire, S Sharma, S Jamghare, Y Kansara, P Rane, **PM Dongre** Alteration in desmosomal adhesion at protein and ultrastructure levels during the sequential progressive of human oral tumorogenesis	***European J Oral Sciences***.	2018
15	BS Khade, VL Mathe, **PM Dongre**	**Journal of Luminescence**	2018

	Alpha amylase binding to thermal plasma synthesized zinc oxide nanosheets: A fluorescence study	187, 449-456	
16	M Yogesha, VG Rao, EAF Martis, EC Coutinho, H Gohlke, S Chidangil, **PM Dongre** Structural features of FAP174,a MYCBP-1 ortholgue from Chlamydomonas reinhardtii reveled by computational and experimental analysis	***RSC Advance*** , 7,5139.	2017
17	SS Sawant, H Dongre, C Ahire, S Sharma, S Kannan, S Mahadik, **P M Dongre** A nomogram predicting the risk of neck node metastasis in Pathologically node-negative oral cavity carcinoma,	***Oral Disease***	2017
18	D Tari, S Haryan, K Patankar, V Jaiswal, M Samant, S Sivakami,, P M Dongre A simple egg membrane model for understanding diffusion characteristics of nanoparticles and amino acids	***Current Science***, Vol 112, No 7,	2017
19	VG Rao, RB Sarafdar, TS Chowdhury, P Sivadas, P Yang, **PM Dongre** Myc- binding protein orthologue interact with AKAP240 in the central pair apparatus of the *Chlamydomonas* flagella,	***BMC Cell Biology*** , 17:24	2016
20	Jessy Mariam, S Sivakami, **Prabhakar M Dongre** Elucidation of structural and functional properties of albumin bound to gold nanoparticles	***Journal of Biomolecular structure & Dynamics***	2016
21	PD Pal, **PM Dongre**, AV Chitre Implication of volume exclusion: A look at thermodynamics prespective of DNA- Hemoglobin complexes and their reconstitution under macromolecular crowding	***Journal of Fluorescence***, DOI 10.1007/s10895-015-1721-2	2015
22	J Mariam, S Sivakami, **PM Dongre** Albumin corona on nanoparticles- a strategic approach in drug delivery (2015) DOI: 10.3109/10717544.2015.1048488	***Drug Delivery***, Informa healthcare	2015
23	MP Pant, J Mariam, A Joshi, **PM Dongre** UV radiation sensitivity of Bovine Albumin Bound to Silver Nanoparticles (2014)	**Journal of Radiation Research and Applied Sciences**, vol7,Issue 4, 399-95	2014
24	J Mariam, S Sivakami, DC Kothari**, PM Dongre** Bioactivity of Albumins Bound to SilverNanoaprticles (2014),	***Protein J*** .DOI10.1007/s10930-014-9553-2	2014
25	PD Pal, **PM Dongre**, AV Chitre Is Macromolecualr Crowding Overlooked? Effect of voliume Exclusion on DNA – Amino Acids Complexes and Their Reconstitutes	***J Fluoresc,*** DOI 10.1007/s10895-014-1412-1	2014

26	A Bhogale, N Patel, J Mariam, **PM Dongre**, A Miotello, DC Kothari Comprehensive studies on interaction of copper nanoparticles with bovine serum albumin using various spectroscopies	***Colloids and Surfaces B: Biointerfaces, 113, 276-284***	(2014)
27	A Bhogale, N Patel, P Sarpotdar, J Mariam, **PM Dongre,** A Miotello, . Systematic investigation on the interaction of bovine serum albumin with ZnO nanoparticles using fluorescence spectroscopy.	***Colloids and Surfaces B: Biointerfaces*** 102 (2013) 257–264.	2013
28	SD Sharma**, P Dongre**, V Mhatre, M Heigrujam Evaluation of automated registration algorithm for Image Guided Radiotherapy (2010),	Australian Physical & Engineering Science in Medicine .	2010
29	Jayant Shelake, Gangadhar Meshrea, **Prabhakar Dongre** Synthesis of 2-oxo-qunoline -3-carboxamide of amplicillin and amoxicillin as inhibitors of penicillin binding protein 1A of *Pseudomonas aerginosa*	***Acta Polonia Pharmacutical –Drug Research*** ,	2011
30	DS Sharma, **PM Dongre**, V Mhatre, M Heigrujam Physical and Dosimetric characteristic of High Defination Multileaf Collimeter (HDMLC) for image guided Stereotactic Radiosurgery (SRS) and Intensity Modulated Radiotherapy	***Journal of applied clinical medical physics, Vol.12, No3, Summer 2011***	2011
31	J Mariam, **PM Dongre,** DC Kothari A study the interaction of silver nanoparticles with bovine serum albumin using fluorescence Spectrophotometery	***Journal of Fluorescence, Vol 21, Issue 3.***	2011
32	AA Yadav, MA Barote, **PM Dongre**, EU Masumdar Studies on growth and characterization of CdS1−xSex ($0.0 \leq x \leq 1.0$) alloy thin films by spray pyrolysis	***Journal of Alloys and compounds Volume 493, Issue 1-2, 18, Pg 179-185***	March 2010
33	TN Bansod**, PM Dongre**, VG Dongrre Synthesis antibacterial and antifungal activity of 1.3-Di (2-substitutal 10H-phenothiazine 10-YL) propane-1-one	***Pharmaceutical Chemistry Journal***, Vol 43, No.6.	2009
34	**PM Dongre**, BB Kadu and Vijay Khole Radiosensitizing effect of Paracetamol with biological metal ions in *Thiobacillus ferrooxidans*	***Asian J Microbial Biotech & Env. Sci. Vol.* 8 No (1) 165-66**	2006
35	**PM Dongre**, BB Kadu and Vijay Khole Radiomodifying effect of some Phenothiazine drugs with biological metal ions in *Thiobacillus ferrooxidans.*	**Asian *J Microbial Biotech & Env. Sci.* Vol. 3, No. 4 307-309**.	2001
36	**PM Dongre**, BB Kadu & V V Khole Modification of radiosensitivity of chlorpromazine with biological metal ions in *Thiobacillus ferrooxidans*	***Indian J Exp Biol.* 37, 1245-47.**	1999

b) Publications (National Journals)

Sr No	Title of the paper	Name of the National Journal	Month & Year of Publication
1	BS Khade, MN Waghmare, N Bhatawale, PG Gawali, CN Khobragade, **PM Dongre** A Quantitative Fluorescence Study of α-Amylase with Different Sizes of Colloidal Silver Nanoparticles and Its Effect on Human Lung Carcinoma A549 Cells	Advanced Science, Engineering and Medicine 12 (5), 662-671	2020
2	**PM Dongre**, Vinod Jaiswam and Suraj Singh Effect of smart flux light on cornea- A biophysical study	Journal of Medical Physics	Oct 2020
3	PM Dongre & Amruta Joshi A systematic organization of bioinformatics database of radiosensitizers and radioprotectors	Journal of Radiation and Cancer Research 9 (2), 102	2018
4	A Lohot, S Gite, G Kelkar, **PM Dongre** Influence of meditation on visual and auditory reaction time in young healthy volunteers	***Indian J Pharmacol***, 61(2): 100-106	2017
5	YK LAHIR, **P M DONGRE** et al. Role of nanomaterials in the development of biosensors	***Global Journal of Biosciences and Biotechnology***, Vol 5 (2), 146-163	2016
6	D Gurve, H Muthurajan, P Karnik, A Deshpande, AK Srivastava, **PM Dongre** et al Novel Algorithm for coherence level measurement using R-R interval of ECG signal	***IEE WISPNET***, 2242-2246.	2016
7	A Bhogale, N Patel, J Mariam, **PM Dongre**, A Miotello, DC Kothari Study of interaction of ZnO nanoparticles with human serum albumin using fluorescence spectroscopy	***AIP Conf. Proc.*** 1512, pp. 130-131	2013
8	Gangadhar Meshram, Jayant Shelake, **Prabhakar Dongre** Simple, Efficient synthesis, Antibacterial activity and molecular docking study of 3-(1H-benzimidazole-2y1)-chloroquinolines compounds	***Journal of Pharmacy Research*, 3(8).**	2010
9	TN Bansod**, PM Dongre**, VG Dongrre Synthesis antibacterial and antifungal activity of 1.3-Di (2-substitutal 10H-phenothiazine 10-YL) propane-1-one	***Pharmaceutical Chemistry Journal***, Vol 43, No.6.	2009

c) Patent filled / published

Sr No	Patent name	Date of publication	Application No
1	An enzaymatic synthesis of gold nanostructures with uniform size and less time consuming	**24/08/2028**)	**201821031770**
2	An enzymatic method for synthesis of silver nanostructures with various sizes and less time consuming	**24/08/2028**)	**201821031761,**
3	Teaching, training and learning kit for synthesis of silver and gold metal nanostructure using enzyme	**24/08/2018**)	**201821031747**
4	Human plasma proteins-GNP (Gold Nanoparticle) conjugate – An alternative novel polyvalent Anti Snake Venom (ASV	**27/03/2020**	**2021011364**

d) Conference / symposia proceeding publications

S No	Title of Paper	ISBN No	Year of Publication
1	Vinod Jaiswal , P M Dongre Biophysical Characterization of albumin bound silver nanoaprticles International conference on Nanotechnology for Human Welfare-Pune	(ISBN: 978-93-80747-98-7)	2018
2	M Waghmare, BS Khade, V jaiswal, **PM Dongre** Mechanistic Understanding of Protein-Nanoparticles Corona-Relevance to Targeted Drug Delivery International conference on Nanotechnology for Human Welfare-Pune	(ISBN: 978-93-80747-98-7)	2018
3	M Waghmare, BS Khade, **PM Dongre** Spectroscopic Study of Albumin Adsorbed on Silver Nanoparticles International conference on Nanotechnology for Human Welfare-Pune	(ISBN: 978-93-80747-98-7)	2018
4	BS Khade, **PM Dongre** Kinetic study of α-amylase bound on Zinc oxide nanosheet International conference on Nanotechnology for Human Welfare	(ISBN: 978-93-80747-98-7)	2018

e) Books/ chapter publications:

Sr.No.	Title of the book / book chapters	Name of the publisher	Institutions where referred for study
1	Radiation in Medicine and Biology Chapter "**Gold Nanoparticles Assisted Radiation Therapy**"	Jenny Stanford Publication, 2017, CRC Press Taylor & Francis	Reference book

12.: International / National Exposure through conference / symposia organization

International exposure through participation in workshops, seminars or conferences held outside the country:

Sr.No.	Title of Workshop / Seminar / Conference	Month & year	Place
1	International Conference On emerging Trends and Challenges in Science and Technology" (ETCST-2014)	November 3-8, 2014	Bangkok, Thailand
2	International Conference on emerging Trends and Challenges in Science and Technology & Society (ETCST-2017)	May 12-16, 2017	University of Mauritius, Mauritius

Experience of organizing events such as workshops, seminars, conference at an international level within the country in the field of higher education.

Sr.No	Title of workshop / seminar / conference	Month & Year	Place	Role assigned (to you) in organizing the event
1	Indian Biophysical meeting (Symposium on Frontiers of Biophysics, Biotechnology & Bioinformatics)	Feb 13-16, 2013	Mumbai University	Convener
2	International Conference On emerging Trends and Challenges in Science and Technology" (ETCST-2014)	Nov 03-08 , 2014,	Bangkok (Thailand)	Convener
3	International Conference on emerging Trends and challenges in Science and Technology,	May 22-26, 2016	University of Mauritius, Mauritius	Convener
4	14th International conference on Metal Ions in Biology & Medicine and green health conference (Jointly organized by National Environmental Research	Nov 28-30, 2016	Mumbai	One of the Convener

	Institute, Mumbai & University of Mumbai)			
5	Second International School on Radiation Research (ISRR-2020) Theme: Radiation Induced DNA damage Response: Mechanisms and human health implications	Sept 6-20,2020	E-Conference Platform: google meet	Organizing member

13. Lecture delivered in national/ International symposia /conference / workshop etc

S No	Title	Name of the event (conference/ seminar etc.)	Organizer / Institute	Date and duration	National/ International
1	Synthesis and characterization of nanoparticles	Photonics Materials & Nanotechnolgy	Shahu Mahavidyalaya, Latur,	23 & 24 Jan,2009.	National
2	Nanotechnolgy-Application in medicine and biology	Applied Aspects of Life Sciences for the welfare of Mankind	Deogiri College, Aurangabad,	Jan 15-16, 2011.	UGC Sponsored
3	Nanotechnology as Interdisciplinary approach	Interdisciplinary Applications of Nanotechnology	SMT Pushatai Hire Arts,Science, Commerce Mahila College, Malegaon, Dist Nashik, Dated:	Jan 24, 25th, 2011.	UGC Sponsored state level
4	Impact of Nanotechnology on Environment	Environment & Climate Changes	MVM Home Science College Rajkot, Gujarat state,	Dated Feb 13, 2011.	National Conference
5	Interaction of nanoparticles with biological system	Eco Revolution-2011	Eco Need Foundation	Feb 19-20, 2011	International
6	Research Grants and preparation of research proposal under BRNS scheme	Avenues for Scientific Research Proposal Grants	B.N. Bandodkar College of Science, Thane.	18th August, 2011	National seminar
7	Biosynthesis of Nanoparticles	Recent Advances in Nanoscience	School of Chemical Technology, North	June 15-30, 2012.	National Sponsored by AICTE.

		and Nanotechnology	Maharashtra University, Jalgaon		
8	Structure-function relation of BSA in presence silver nanoparticles" delivered	National Conference on Nanotechnology	Maharashtra Mahavidyalaya Nilanga, Dist, Latur.		National level
9	Nanotechnology	Career Guidance and Opportunities in electronics	Department of Electronics, Shivaji University, Kolhapur	15th to 16th Sept 2012.	State level
10	Probing interaction between silver nanoparticles and protein"	Biomedical Physics (UGC/BCUD Pune),	Anantrao Pawar College, Pirangut, Pune,	Nov 2014	State level
11	Interaction of nanostructures with biological macromolecules- A biophysical study	Emerging Trends & Challenges in Science and Technology	International of Society of Science and Technology, Mumbai	Nov 3-8, 2014	International
12	Aspects of Biophysical Curriculum: An Indian Perspective	Role of Biophysics in Academia & Industry	Department of Biophysics, Panjab University,	October 11-13, 2017	National
13	Interaction of silver Nanostructure with snake venom	Emerging Trends and Challenges in Science , Technology & Society	Bionano Frontier-India University of Mauritius, Mauritius	May 12-14, 2017	International
14	Mechanistic understanding of protein-nanoparticles corona- relevance to targeted drug delivery	International Conference on Nanotechnology for Human Welfare (ICNHW-2018)	Department of Physics, Haribhai V. Desai College, Pune.	Feb 1-3, 2018.	International
15	Nanostructure – Protein conjugate – A strategic approach	Indo-Egyptian Symposium	Dept of Biosciences IITB	Jan 30-31, 2019	International

	for targeted drug delivery				
16	How to write Research Proposal for financial Assistance	Research Methodology & writing research Project	Hirval Trust , Mahad, Mumbai	7th March 2019	Regional
17	Bionanomaterials: A Biophysical perspective and their applications	Preparative workshop on Biomaterials	Bandokar College, Thane	July 19, 2019	National
18	Protein Purification and characterization Techniques Targeted Drug Delivery	UGC Refresher course Science and Technology	Dr Babasaheb Ambedkar University Aurangabad	Sept 14, 2019	National
19	Smart Phone and Health Risk	Online UGC Refresher Course in Social Sciences	Dr Babasaheb Ambedkar University Aurangabad	09/12/2020	National
20	Research Publication process and selection of research journal for publication	Online National Symposium on Research paper writing and its publication	Azad Mahavidyalaya , Ausa. Dist Latur	October 13, 2021	National

14: Leadership Experience:

Sr. No.	Brief description of nature of leadership activity and role played	**Documented evidence of achievements in leadership**
1	University of Mumbai is one of the Institutes in India to establish department of Biophysics (2001-2002) as an independent discipline and to have a department dedicated to study biology using tools and approaches of Physics and Physical Chemistry, I am very much fortunate that got an opportunity to establish this department after joining me in May 2006, Previously department was working with (in-house) in co-ordination of life Sciences department, later became independent. There were lot of challenges while developing the laboratory facilities for research and training to Biophysics students, mainly I was alone faculty	Placement of students for higher studies (PhD, Post doctorate) at national and internationally reputed Institutes such as Max Plank Institute, Germany; Kentucky, US; Hamburg

	in the dept. To provide quality education and training to the students, I started writing research project to Govt agencies like BRNS, DAE, DST, DBT, NGO etc. as a results I am able to create a state of art research facilities in the department of Biophysics. Teaching was also a challenging due to specialized subject and there were no such experts available in Colleges affiliated to Mumbai University. I have Invited faculties from IITB, TIFR, BARC, Medical College and for teaching & training purposes. A quality teaching and training reflected placement of the students for higher education (PhD, Post doctorate) in Internationally repute Institutes. Today department is figured at national level.	University, Germany; Louisville USA etc. In India- IITs, IISERs, ICMR Institutes, DAE Institutes etc Placement of students in reputed industries
2	Under the chairmanship of the Board of studies in Biophysics, a constructive changes brought in curricula of biophysics and established choice based credit system. This programme has provided students a broad based training in subject with strong background of basic concepts as well as well exposing them to the advanced field. The programme focused on recent development including, theoretical knowledge, significance emphasis has been given to provide hands on experience to the students. A multidisciplinary approach has been employed to provide best leverage to students to enable them move into advance and frontier areas of biological research in future.	Placement of students for higher studies in internationally reputed research laboratories as well as in industry too.

15. <u>Experience of handling Quality issues, assessment and accreditation procedures, etc.</u>

Sr.No.	Area	Institution	Duration	Achievements and evidence therefor
1	Quality issues National Institute of Ranking framework (NIRF)	University of Mumbai	2017- till date	Actively involved in NIRF data preparation of the Department, NIRF data achievement helped in ranking year 2019-20 University placed (NIRF) 81 number (2019-20)
2	Assessment and accreditation procedures	University of Mumbai	2007- till date	Actively involved in NAAC accreditation procedure, worked as coordinator at dept level and maintained and prepared IQAC data for NAAC accreditations. It has helped to University for NAAC ranking
3	Any other issue (Please specify) ISO 9001-2000	MIMSR Medical College, Latur	Oct 2003 to April 2006	Obtained training of ISO 2001-2002 (Auditing of quality management system) and maintained quality of education and training at department level as per the ISO requirement.

16. <u>Experience at the State or national or international level in handling youth development work:</u>

Sr.No.	Nature of Activity / Event	Institution	Duration	Achievements
1	Blood donation camp, organized residential NSS camps (minimum 10 days) in rural areas (adopted villages), science exhibitions (medical related), organization of special lecture on social issues. Organized health camp in flood areas (Nanded)	MIMSR Medical College, Latur	Jan 2002 – April 2006	Yearly 2-3 blood donation camps were organized and average 80-100 blood units were collected of each camp
2	Biophysics Week (this activity is related to career and opportunities in interdisciplinary science in India and abroad): Organised lecture of experts in the interdisciplinary science, organized science exhibition. Motivated to students for development / preparation of working models for teaching-learning during science exhibition etc	University of Mumbai	March 13-16, 2016	Participants: 60 students It was for limited students
3	Scientific competition: This activity is related to inculcate research and promote scientific culture in students. Students have been guided / motivated to participation in scientific competition as well as participation in conferences / seminar/ workshop etc	University of Mumbai		Students received various prizes (gold, silver, bronz medal) at University as well as inter university level.
4	Organized workshop/ seminar on the occasion National of science day celebration.	University of Mumbai	Feb, 2011, Feb 2012, Feb 2014	More than 100 students were participated from various colleges from Mumbai University of each event
5	Organized Live discussion on career planning in Biophysics in the shadow of the pandemic for Post graduates and PhD students	Zoom, facebook Youtube platform	July 7, 2020	70-80 students participation
6	Organized live discussion on career advice in interdisciplinary science (Biophysics) for undergraduates.	Zoom Platform	July 29,2020	More than 170 students participation all over india

17. Innovation process development in teaching, learning process/ Technology development:

Digitization of Radiosensitizers and Radioprotectors: Radiosensitizers and radioprotectors are the compounds that modify the radiation therapy treatment. Radiosensitizers makes tumor cell more sensitive to radiation therapy which increase the effectiveness of cancer treatment where radioprotectors are the compounds that reduce the damage/ spare normal tissue. Several of these compounds have been studied using appropriate biological model system and their efficacy. The literature of these compounds are highly scattered and it's required to have on single platform further study/ help in improvement in radiotherapy treatment. Therefore I have developed bioinformatics database of radiosensitizers and radioprotectors using information available in pubmed, scientific journals and other scientific sources. The collected information of these compounds systematically organized on single platform where user can browse typical information of the compound. The information pertaining to these compounds mainly on structural features, radiobiological aspects, biological targets, clinical trials, pharmacological aspects, toxicity etc. The purpose of the preparation of these data is to help clinicians, researchers, scientists for the improvement of radiation therapy treatment. It is freely available on website: http://bioph.mu.ac.in/Welcome/

Nanostructure based snake venom inhibitor Snake bite is one of the most important public health problem in the worldwide, specifically in tropical countries. It is a common occupational hazard mainly in rural areas. There is significant morbidity and mortality reported worldwide. In India near about 52 thousands morbidity reported per year. At present there is no reliable treatment established due various physiological/ biochemical problems. We have developed snake venom (cardiotoxin and neurotoxins) inhibitor using silver and gold nanostructure

Development of teaching, training materials for graduate, undergraduate & high school students

a) ***Teaching, training kit for synthesis of silver and gold nanostructures:*** Nanoscience and nanotechnology is an emerging branch of science, It is the study of phenomena and manipulation of materials at atomic, molecular and macromolecular scales, where properties differ significantly from those at a larger scale. Synthesis & characterization of nanostructure is one of the most important component in the nanoscience technology. To prepare easy and economically of nanostructures , I have develop simple kit for synthesis of gold and silver synthesis of nanostructure, The kit could be used to t*rain* the students (high school, graduate, post graduate, research scholar etc) in the field of nanoscience and nanotechnology. Kit provides desired chemicals/ constitutes, the students can easily prepare nanostructures using protocol given with kit. The important feature of the kit is that it eliminates sophisticated equipment's and other expenditures.

b) Teaching training membrane model for understanding diffusion characteristics across biological membrane Diffusion is an important phenomenon that occurs in living system for carrying out various biological activities. There are not many resources available of experimentally understanding the diffusion phenomenon. I have developed a simple biological membrane model for understanding diffusion characteristics across biological membrane. The chicken egg shell has been used and prepare as membrane model to perform passive diffusion. It has been tested diffusion for Silver Nanoparticles and amino acids against gravity, towards gravity and lateral state. Chicken eggs cell membrane has been systematically characterized with the help of X-ray Scattering and Scanning Electron Microscopy. This model is being established at large scale level. The current science journal has appreciated this work (***Current Science***, Vol 112, No 7, 2017)

c) Construction of device for understanding thermal properties of biological macromolecules Thermodynamics approach to biological systems play important role for understanding thermal properties of biological materials. Currently scanning calorimetry is being used for studying thermal characteristics of biological macromolecules, biological reactions which provide key features in terms of entropy, enthalpy and free energy etc. I am developing a specific thermal analyzer for biological macromolecules which principle is completely different than scanning calorimetry and other methodology. The experimental data are being generated through this new approach. The preliminary results are promising, after understanding the results; this device could be new technology for research and development.

e) Materials for storage of microorganisms and biological macromolecules: Storage / preservation of cells is extremely important to ensure that quality is maintained before usage of cells. Several industries such as the food, pharmaceutical and horticultural industries require an extensive use of various types of cells. Hence there is a requirement to storage of the cells ,so cells can be used either directly or for further research at the appropriate time. In order to store the cells, expertise from the variety of disciplines including but not limited to engineering, biology, biotechnology, cryobiology etc is required to design protocols that enable the development of precise and reliable preservation methods. There are many methods that are used today to preserve cells such as cryopreservation, hypothermic preservation, vitrification, freeze drying etc. All these methods have several advantages, disadvantages and limitations. My research team has developed a simple and innovative material where cell / biological materials (DNA) can be stored for longer time (several years). A unique crystal that can store cell longer time without providing nutrients, its cost effective, novel and simple. Not much expertise is required. Testing of this technique/materials, experimentation and data collection / validation are in progress.

18. Participation in curricular development

Development of curriculum : Under the chairmanship of the Board of studies in Biophysics, I have revised curricula and designed as per choice based credit system. The program provide broad based training in Biophysics with strong background of basic concepts as well as well exposing advanced and recent development in the field of subject. A multidisciplinary approach has been employed to provide best leverage to students to enable them move into advance and frontier areas of biological research in future.

- Participated in curricula development of MSc Life Sciences, University of Mumbai
- Participated in curricula development of MSc in Nanoscience and Nanotechnology, University of Mumbai (2017-18)
- Participated in curricula development of BSc Physics , Sophiya College, Mumbai (2019)
- Participated in curricula development of M.Sc. Medical Physics, SRTM University Nanded (2016)

19.Research collaboration / MoU Industry- Academia undertaken:

Established collaboration with internationally reputed Institutes and Industry for research and training. The collaboration involved sharing / exchange research ideas between industry and Institutes. The output of

collaboration benefitted to the M.Sc, PhD and post doctorate students in terms of training and research, joint publications in reputed research journal and patents. The Institutes/ Universities involved for collaboration viz. Indian Institute of Technology Bombay, UM DAE Centre for Excellence in basic sciences, Mumbai ; Smt Savitribai Phule Pune University, Pune; Haffkine Institute for Training Research Testing, Mumbai ; Dr Balabhai Nanavati Hospital, Mumbai ; Advanced Centre for Treatment, Research and Education in cancer, Navi Mumbai; Bhabha Atomic Research Centre, Mumbai ; Ashwamedh Medicare Pvt Ltd.; Life Force Trust, Mumbai.

20 Start-up established (SCINOVA LABS LLP): Ten years of our laboratory research culminated into out standing publications in peer review journals, creation of patents and formation of start-up. We have been approved start-up (**SCINOVA LABS LLP**) by the Govt of India. We have developed innovative various experimental models for the purpose of teaching-training to undergraduate and post graduate students which will easily to understand complex scientific theory.

21. Reviewer for various research journals

- Journal of Fluorescence
- Journal of Medicinal Chemistry
- Natural Products and Resources Repository, NISCAIR, CSIR
- Journal of Natural Sciences
- Radiation Protection and Environment Sciences.
- New Journal of Chemistry (RSC publ)
- Journal of Hazardous
- International Journal of Biological macromolecules
- Journal of Biomolecular structure and dynamics

22. PhD / M.Phil Examiners of various universities/ Institutes

- Smt Savitribai Phule Pune University, Pune
- Banaras Hindu Univeristy, Varanasi,
- Dr Babasaheb Ambedkar Marathwada University, Aurangabad
- NIMHANS, Banglore
- Kalyani University, Kolkatta
- Panjab University, Chandigarh
- University of Lucknow, Lucknow
- Karunya University, Coimbatore
- DY Patil Medical University, Kolhapur
- MGM Univerisity, Navi Mumbai

23. Skill and competence:

Technical skill: I am comfortable with technology, some of my research project exhibited about technology development, expert in e-content development.

Managerial skill: Ability to anticipate issues and problems advance strategic plans, Ability to generate resources and to allocate the same appropriately. Capacity to work effectively under pressure and to manage work within right deadlines.

Leadership skill: Ability to motivate a diverse groups of stakeholders, Desire to further the mission and goals of the organization.

Interpersonal communication skill: Have ability to interact effectively and persuasively with a strong knowledge-base at senior levels and in large for a as well as on a one-to-one basis.

24. References:

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