Prof. (Dr.) Ashok L. Sunatkari

Professor & In-charge Principal

Research Interests:

- To study the interaction of intense light (laser) with matter.
- Nanomaterials for energy applications
- Fabrication of Perovskite solar cells
- Sodium Ion batteries
- Synthesis of metal (Au, Ag) Nanoparticles by reduction method as well as Semiconductor Nanoparticles specially ZnS, CdS, ZnO and CuO by chemical co-precipitation method.
- Characterization of synthesized NPs: Uv-Vis, XRD, TEM, HRTEM, EDAX, PL, FTIR and Z-scan technique.
- Preparation of the thin films by spin coating method.
- Nonlinear optical studies of the thin film/composite materials.

PhD Students: Presently, Six students are enrolled for PhD Degree under my Supervision. Details are as given below.

Sr. No.	Name of the students	Topic of the PhD	Fellowship Awarded for the Topic	Status of work
1.	Mr. Ashish Baina	Investigation of Modified NASICON $Na_{1+x}Zr_2Si_xP_{3-x}O_{12}$ solid-state electrolytes for Sodium-ion batteries.	NIL	Undergoing
2.	Miss. Harsha Mohan Sonawane	Photoluminescence Properties Of Lanthanides Doped Cesium Cupric Chloride (Cscucl3) Perovskite Nanocrystal For Optoelectronic Applications.	Awarded Rs. 35,000 Plus HRA per month for 3 years by BARTI, state Government funding agency.	Undergoing

3.	Miss. Sonali Ramkrishna Surase	Investigation of Advanced Electrode Structure for a New Class of Electrochemical Supercapacitors	Awarded Rs. 35,000 Plus HRA per month for 3 years by SARTHI, state Government funding agency	Undergoing
4.	Miss. Reshma Sachin Kajrolkjar	Fabrication of Inverted Plannar Perovskite Solar	NIL	Undergoing
		Cell with Enhanced Efficiency and Stability.		
5.	Mr. Anarse Dattatraya Ananta	Studies on CO3O4 / MXene based Nanocomposite Electrode Materials for High performance Supercapacitors.	NIL	Undergoing
6.	Mr. Ganesh Sadanand Madgaikar	Growth Of Metal Oxide Thin Films By Chemical Bath Deposition (CBD) Technique For Energy Applications	NIL	Undergoing

Research Publications:

International Journals: List of all published papers can be seen in the link given below.

1. https://scholar.google.co.in/citations?user=ZJ7ntSgAAAAJ&hl=en
2. https://orcid.org/my-orcid?orcid=0000-0002-0283-5859

Sr.No	Title	Publisher	Impact Factor
1.	**A.L. Sunatkari**, S.S. Talwatkar, Y.S. Tamgadge, G.G. Muley, *Comprehensive study of l-Alanine passivated colloidal gold nanoparticles and GNP-PVP thin films: Linear optical properties and very large nonlinear refractive index, absorption coefficient, third-order nonlinear susceptibility measurements and effect of passivation*, Optical Materials,121 (2021) 111458 …	Elsevier	**3.754**
2.	**A.L. Sunatkari**, S.S. Talwatkar, Y.S. Tamgadge, G.G.Muley,*Surfactant-dependantthermally induced*	Royal society of Chemistry London	**4.036**
	nonlinear optical properties of l-ascorbic acid-stabilized colloidal GNPs and GNP–PVP thin films, RSC Advances 9 (27) (2019), 15502-15512		

3	S. S. Talwatkar, Y. S. Tamgadge, **A. L. Sunatkari,** A. B. Gambhire, G. G. Muley, *Amino acids (L-arginine and L-alanine) passivated CdS nanoparticles: Synthesis of spherical hierarchical structure and nonlinear optical properties*, Solid State Sciences **38**, (2014) 42-48.	Elsevier	**3.50** Peer-reviewed, indexed
4	Y. S. Tamgadge, **A. L. Sunatkari**, S. S. Talwatkar, V.G. Pahurkar, G. G. Muley, *Linear and nonlinear optical properties of nanostructured Zn (1− x) SrxO–PVA composite thin films*, Optical Materials **37**, (2014) 42-50.	Elsevier	**3.75** Peer-reviewed, indexed
5	S. S. Talwatkar, **A. L. Sunatkari**, Y. S. Tamgadge, V. G. Pahurkar, G. G. Muley, *Influence of Li+ and Nd3+ co-doping on structural and optical properties of l-arginine-passivated ZnS nanoparticles*, Applied Physics A **118 (2)**, (2014) 675-682.	Springer	**2.983** Peer-reviewed, indexed
6	S.S. Talwatkar, **A.L. Sunatkari**, Y.S. Tamgadge, V.G. Pahurkar, G.G. Muley, *Surface passivation by l-arginine and enhanced optical properties of CdS quantum dots co-doped with Nd3+–Li+*, Journal of Nanostructure in Chemistry **5 (2**), (2015) 205-212.	Springer	**8.00** Peer-reviewed, indexed
7	Y.S. Tamgadge, S.S. Talwatkar, **A.L. Sunatkari**, V.G. Pahurkar, G. G. Muley, *Studies on nonlocal optical nonlinearity of Sr–CuO–polyvinyl alcohol nanocomposite thin films*, Thin Solid Films **595**, (2015) 48-55.	Elsevier	**2.35** Peer-reviewed, indexed
8	Y.S. Tamgadge, V.G. Pahurkar, S.S. Talwatkar, **A.L. Sunatkari,** G.G. Muley, *Thermally stimulated third-order optical nonlinearity in Cd-doped CuO–PVA thin films under cw laser illumination*, Applied Physics B **120 (2)**, (2015) 373-381.	Springer	**2.171** Peer-reviewed, indexed
9	S. S. Talwatkar, **A. L. Sunatkari**, A. B. Gambhire, A. B. Naik, G. B. Harde, G. G. Muley, *Optical properties of L-alanine passivated CdS nanoparticles*, Journal of the Indian Chemical Society **92 (5)**, (2015) 713-716.	Scientific Publ.India	------ Peer-reviewed, indexed
10	**A.L. Sunatkari**, S.S. Talwatkar, Y.S. Tamgadge, G.G. Muley, *Influence of Surface Passivation by L-Arginine on Linear and Nonlinear Optical Properties of Ag-PVP Nanocomposite*, American Journal of Materials Science **5 (3A)**, (2015) 21-30.	Scientific &Academic Publishing ,America.	------- Peer-reviewed, indexed
11	**A.L. Sunatkari**, S.S. Talwatkar, Y.S. Tamgadge, G.G. Muley, *Synthesis, Characterization and Optical Properties of L-Arginine Stabilized Gold Nanocolloids* Nanoscience and Nanotechnology **5 (2)**, (2015) 30-35.	Scientific &Academic Publishing ,America.	------- Peer-reviewed, indexed
12	Y.S. Tamgadge, **A.L. Sunatkari**, S.S. Talwatkar ,V.G.	Elsevier	**3.754**
	Pahurkar, G. G. Muley, *Passive optical limiting studies of nanostructured Cu doped ZnO–PVA composite thin films*, Optical Materials 51, (2016) 175-184.		Peer-reviewed, indexed
13	G. G. Muley, **A. L. Sunatkari**, A. B. Naik, M. N. Rode, B. H. Pawar, *Growth And Characterization Of Sr Doped L.Arginine Capped Zns Nanoparticles*, Bionano Frontier **7** (special issue), (2011) 82-84.	Bio-Nano	------ Peer-reviewed, indexed

14	**A. L. Sunatkari**, S. S. Talwatkar, Y. S. Tamgadge, G. G. Muley, *SYNTHESIS, LINEAR AND NONLINEAR OPTICAL PROPERTIES OF AG/PVP NANOCOMPOSITE*, International journal of Nanotechnology and Application **3(5)**, (2013) 43-50	TJPRC, India	**1.7** Peer-reviewed, indexed
15	G.G. Muley, Y. S. Tamgadge, R. V. Salodkar, S. B. Sawarkar, **A. L. Sunatkari**, *Nonlinear absorption of L-arginine capped ZnO nano-suspension*, International Journal of basic and Applied Research	India.	----- Peer-reviewed, indexed
	4, (2014) 49-52.		
16	**A. L. Sunatkari,** S. S. Talwatkar, Y. S. Tamgadge, V.G. Pahurkar, G. G. Muley, *Synthesis, Characterization and Properties of L-Arginine-Passivated Silver Nanocolloid,* AIP Conference Proceedings 1728 (1), 020663	AIP	**0.415** Peer-reviewed, indexed
17	Y. S. Tamgadge, D. V. Atkare, V.G. Pahurkar, S. S. Talwatkar, **A. L. Sunatkari,** G. G. Muley, *Thermally Stimulated Nonlinear Refraction in Gelatin Stabilized Cu-PVP Nanocomposite Thin Films*, AIP Conference Proceedings 1728 (1), 020112	AIP	**0.415** Peer-reviewed, indexed
18	**A. L. Sunatkari**, S. S. Talwatkar, Y. S. Tamgadge, G. G. Muley, *Enhanced nonlinear optical properties of L-arginine stabilized gold nanoparticles embedded in PVP polymer,* Accepted **in AIP Conf. Proceedings. (To be held in ICC Bikaner, Nov, 24-25,2017)**	AIP	**0.415** Peer-reviewed, indexed
19	S. S. Talwatkar, **A. L. Sunatkari**, Y. S. Tamgadge, G. G. Muley, "**AIP Conf. Proceedings (To be held in ICC Bikaner,Nov, 24-25,2017)**	AIP	**0.415** Peer-reviewed, indexed
20	S. S. Talwatkar, **A. L. Sunatkari**, Y. S. Tamgadge, G. G. Muley, "*Nonlinear Optical Properties of Nd3+-Li+ Co-Doped ZnS-PVP thin films*" Submitted to the **AIP Conf. Proceedings Mumbai, Dec, 26-30, 2017)**	AIP	**0.415** Peer-reviewed, indexed
21	Y. S. Tamgadge, D. V. Atkare, V.G. Pahurkar, S. S. Talwatkar, **A. L. Sunatkari,** G. G. Muley, *"Optical limiting in gelatin stabilized Cu-PVP composite colloidal suspension*, Accepted **in AIP Conf. Proceedings, Nov, 24- 25,2017)**	AIP	**0.415** Peer-reviewed, indexed
22	A L Sunatkari, S S Talwatkar, H M Sonawane, A Recent Development of Luminescence Properties of Yb3+ Doped Metal Halide Perovskites Nanocrystals for Photonic Applications: A Review, Journal of Physics: Conference Series 2426 (1), 012010	IOP Pu blis hin g	**0.21**
23	A L Sunatkari, S S Talwatkar, A H Bhaina, A Review on the Development of Na+ ion Conducting Solid Electrolytes for Batteries, ournal of Physics: Conference Series 2426 (1), 012042	IOP Pu blis hin g	**0.21**

24	A L Sunatkari, S S Talwatkar, R Kajrokar, Review on Enhancement of Stability and Efficiency of Perovskite Solar Cell, Journal of Physics: Conference Series 2426 (1), 012015	IOP Publishin	**0.21**
25	Y. S. Tamgadge, G. G. Muley, M. A. Mahure, P. P. Gedam, **A. L. Sunatkari**, Research Journey, 110(I) Feb, 2019 280-283,	International Research Fellows Association's	----
26	**A. L. Sunatkari**, S. S. Talwatkar, Y. S. Tamgadge, G. G. Muley, Intl J. of Adv. and Inno. Research, 1, vol.6 March, 2019 102-105	indian Academicians and Researcher Asso.)	-----
27	S. S. Talwatkar, **A. L. Sunatkari**, Y. S. Tamgadge, G. G. Muley, Intl J. of Adv. and Inno. Research, 1, vol.6 March, 2019 123-126	indian Academicians and Researcher Asso.)	----
28	S. S. Talwatkar, **A. L. Sunatkari**, Y. S. Tamgadge, G. G. Muley, Intl J. of Adv. and Inno. Research, 1, vol.6 March, 2019 127-130.	indian Academicians and Researcher Asso.)	-----

International Conferences:

1. **A. L. Sunatkari,** S. S. Talwatkar, Y. S. Tamgadge, V.G. Pahurkar, G. G. Muley, *Synthesis, Characterization and Properties of L-Arginine-Passivated Silver Nanocolloid,* International Conference on Condensed Matter and Applied Physics (ICC-2015), October 30-31, 2015 Bikaner, India (Poster presentation).
2. Y. S. Tamgadge, D. V. Atkare, V.G. Pahurkar, S. S. Talwatkar, **A. L. Sunatkari,** G. G. Muley, *Thermally Stimulated Nonlinear Refraction in Gelatin Stabilized Cu-PVP Nanocomposite Thin Films*, International Conference on Condensed Matter and Applied Physics (ICC-2015), October 30-31,2015, Bikaner, India (Poster presentation).
3. **A. L. Sunatkari**, S. S. Talwatkar, Y. S. Tamgadge, G. G. Muley, *Enhanced nonlinear optical properties of L-arginine stabilized gold nanoparticles embedded in PVP polymer,* Recent Advances in Nano Science and Technology, RAINSAT-2015, 8-10th July 2015, Chennai, India (Oral Presentation).
4. **A. L. Sunatkari**, S. S. Talwatkar, Y. S. Tamgadge, V.G. Pahurkar, G. G. Muley, *Synthesis, Linear And Non-Linear Optical Properties Of Ag/ PVP Nanocomposite.* International Conferences on Nanotechnology, Haldia (India), ICNT 2013, (Oral presentation).
5. Y. S. Tamgadge, **A. L. Sunatkari**, S. A. Sunatkari, V.G. Pahurkar, G. G. Muley, *"Linear and non-linear optical properties of L-arginine encapsulated ZnO nano-suspensions".* International Conferences on Nanotechnology, Haldia (India), ICNT 2013, Proceedings pg. No.93, (Oral presentation)
6. **A.L. Sunatkari**, G. B. Harde, S. J. Uke, Y. M. Mohekar, B. H. Pawar, G. G. Muley, *'Growth and characterization of polymer embedded l-alanine capped CdS nanoparticles',* international conference on

nanomaterial and nanotechnology (ICNANO-2011, Delhi ,India, (poster presentation)

National Conferences:

1. **S. S. Talwatkar**, A. L. Sunatkari, Y. S. Tamgadge, V.G. Pahurkar, & G. G. Muley, "*ZnS nanoparticles: The effect of Cs- Nd co-doping on size and optical properties*", National conference on "Environmental issues and benefits with special reference ot polymer industry", (2015) Thane, India.
2. S. S. Talwatkar, Y. S. Tamgadge, **A. L. Sunatkari**, V.G. Pahurkar, & G. G. Muley, "*Optical studies on CdS nanoparticles co-doped with (Nd+Li) & capped with L-Arginine*." Proceedings of National Conferences, UTCS 2013, 107-109,Pathardi, India, (Oral presentation).
3. Y. S. Tamgadge, **A. L. Sunatkari**, S. S. Talwatkar, V.G. Pahurkar, & G. G. Muley, *"Effects of capping on particle size of ZnO Quantum dots",* Proceedings of National Conferences, UTCS 2013, 118-120, Pathardi, India, (Oral presentation).
4. **A. L. Sunatkari**, S. S. Talwatkar, Y. S. Tamgadge V.G. Pahurkar, & G. G. Muley*, "Synthesis & optical properties of Ag/PvP nano composite."* Proceedings of National Conferences, UTCS 2013, 137-139. Pathardi, India(Oral presentation).
5. **A. L. Sunatkari**, S. S. Talwatkar, Y. S. Tamgadge V.G. Pahurkar, & G. G. Muley, *"Optical and Structural Properties of L-alanine capped ZnO Quantum Dots,"* Proceedings of National Conferences, UTCS 2013, 143-145. Pathardi, India(Oral presentation).
6. **A. L. Sunatkari**, S. S. Talwatkar, S. J. Uke, Y. M. Mohekar, D. J. Bhagat, S. A. Waghuley, B. H. Pawar, G. G. Muley, *"Uv-Visible Study On Polymer Embedded L-Alanine Capped Cds Nanoparticles".* Proceedings of NCATMSA 2011, 258-261. Arvi Wardha, India (Oral presentation).
7. G. G. Muley, M.N. Rode, A.B. Naik, **A. L. Sunatkari**, B. H. Pawar, *'Growth and Characterisation of new NLO crystal: L-Arginine cynoacetate (Lcla) for SHG applications'*, Proceedings of National conference on Material Science: Trends and Future (NCMS-2010, Amravati), Amravati, India (Oral presentation)
8. **A. L. Sunatkari**, A.B. Naik, M.N. Rode, B. H. Pawar, G.G.Muley, *'Growth And Characterization Of Sr. Doped L.Arginine Capped Zns Nanoparticles',* Proceedings of National seminor on Current Trends In Materials Sciences (NSCTMS-2011,) Murtizapur, India (Poster presentation).

Reviewer :

- Reviewed research papers for various journals such as "Material science in semiconductor Physics", Elsevier Publication, "Material Chemistry and Physics", Elsevier Publication, Physica Status Solidi B: Basic Solid State Physics, Wiley publication and RSC journal "RSC Advances".

Research Grants:

1. Received research grant for minor research project from University Grants Commission (UGC- central research funding agency of India) (File No. 47/1690/10)
2. Received starts up research grant by University of Mumbai, Mumbai, India

Professional Membership:

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- Member: Indian Physics Association (life time).
- Member of Board of Studies (BoS)
  1. Member BoS, Sathe College, Ville parle Mumbai
  2. Member, BoS, Kirti College, Dadar, Mumbai

Reviewer:

1. Reviewed the manuscripts for Journal “Material science in semiconductor Physics”, Elsevier Publication
2. Reviewed for Journal “Material Chemistry and Physics”, Elsevier Publication
3. Reviewer for the journal Physica Status Solidi B: Basic Solid State Physics, Wiley publication.
4. Reviewer for RSC journal “RSC Advances”