

# Mr. Kalyani Yashwant Khandale

M.Sc., Ph.D, SET



## Personal Dossier

### Address

A/P - Udagi,  
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### Date of Birth –

26 January 1995

### Marital Status - Unmarried

### Languages Known

English, Marathi, Hindi,  
Kannada.

### Hobbies

Reading, Swimming,  
Playing Chess & Cricket

## Career Objective:

To acquire a challenging position as a Physicist, where my educational and professional skills and abilities are successfully utilized for teaching and associated scientific purposes. Willing to be an important part of a well-reputed organization, so that I can impart my knowledge towards the benefit of the organization.

## Summary:

Motivated Assistant Professor with 4+ years of experience in Post Graduate and Undergraduate. Strong background in creating insightful research papers which increased University exposure and helped student's learning development. Swiftly establishing strong relationships with pupils, increasing class engagement and enjoyment.

## Highlights

- 20 Research article are published during my Ph.D work.
- Proficiency in proprietary software like MATHEMATICA and open source software like LATEX
- 2<sup>nd</sup> Ranker PhD Entrance Test (PET).
- Topper in B.Sc III
- Successfully completed the N.S.S. course.
- Passed Intermediate drawing exam with 'C' grade.
- Passed English typewriting speed 30 W.P.M.
- Participated in the 4<sup>th</sup> Bharatiy Chhatra Sansad in MIT College, Pune on January 2014.

## Experience

2020-2021 and 2021-2022 (P.G.)

Assistant Professor, Shivaji University, Kolhapur.

2022-2023 (U.G.) (1 Year)

Assistant Professor, Gopal Krushna Gokhale, College, Kolhapur.

2023-2024 (U.G.) (1 Year)

Assistant Professor, Rajarshi Chhatrapati Shahu, College, Kolhapur.

## Research Area

Theoretical Physics

Nonlinear Optics

Laser Plasma Interaction

## Skills

Good Communication Skill  
and Leadership Qualities

Good in Decision Making  
and Human Relations

Good Time Management  
and Teamwork

Willingness to Learn

Smart Working

## Conferences

- ❖ RAFAS – June 2021, LPU, Punjab.
- ❖ Raman Memorial Conference - February 2022, Pune, Maharashtra.
- ❖ ICNDA – March 2022, SMIT, Sikkim.
- ❖ AFSM – April 2022, SGM Karad Maharashtra.
- ❖ RTNA - April 2022, Sangola, Maharashtra.
- ❖ ICRT-PCB Nano - May 2022, Satara, Maharashtra.
- ❖ ICCTPP – MIT WPU – June 2022, Pune, M.S.
- ❖ COPaQ – November 2022 IIT Roorkee, Uttarakhand.
  
- ❖ ICPSA – December 2022 AAAPT and Gauhati University, Asam.
  
- ❖ NCPM-MDF – November 2023 SUK, Kolhapur. M.S.
  
- ❖ OPTIQ – December 2023 CUSAT, Cochin, Kerala.
  
- ❖ ICNDA – February 2024 SMIT, Majitar, Sikkim.

## Scholastic

- **May 2024 Ph.D.** Shivaji University, Kolhapur. (Theoretical Physics)

**Thesis Title-** THEORETICAL INVESTIGATIONS OF SELF-FOCUSING / DEFOCUSING OF SKEW COSH GAUSSIAN LASER BEAMS IN ISOTROPIC AND ABSORBING PLASMA MEDIA

**Guide Name-** Dr. M.V. Takale

### Work in brief:

Set up and solved the Beam-Width Parameter (BWP) differential equations for propagation dynamics of Skew cosh Gaussian (skew-chG) laser beams in Isotropic, Absorbing and Quantum plasma media and studied the effect of skewness parameter and order of skewness on propagation dynamics of skew-chG laser beams.

- **2019 MH-SET (Physics)** Qualified, conducted by Savitribai Phule Pune University.
  
- **2018 M.Sc.** (Space Science) with First class from Shivaji University, Kolhapur. (64.75%)
  
- **2015 B.Sc. (Physics)** with Distinction from CBK College, Akkalkot, Solapur University, Solapur. (75.68%)
  
- **2012 HSC (Science)** with First class from State Board of Maharashtra. (61.17%)
  
- **2010 SSC** with Distinction from State Board of Maharashtra. (82.55%)

## Research Publications

1. **K. Y. Khandale**, P. T. Takale, S. S. Patil, P. P. Nikam, M. B. Mane, S. D. Patil, M. V. Takale, “Analytical Study of Skew-cosh-Gaussian Laser Beam Propagation through Collisionless Plasma,” *Indian Journal of Pure & Applied Physics*, **60**, 967-972, (2022).  
[DOI: 10.56042/ijpap.v60i12.67362](https://doi.org/10.56042/ijpap.v60i12.67362)
2. **Kalyani Y. Khandale**, Prasad T. Takale, Sanyogita S. Patil, T. U. Urunkar, Sandip D. Patil, Mansing V. Takale, “Analytical Investigation of Domains of the Order of Skew-Cosh-Gaussian Laser Beams for Relativistic Self-focusing / Defocusing in Homogeneous Plasma,” *Brazilian Journal of Physics*, **53:13**, (2023).  
<https://doi.org/10.1007/s13538-022-01223-3>
3. **K. Y. Khandale**, S. S. Patil, P. T. Takale, A. S. Patil, R. T. Patil, S. D. Patil, M. V. Takale, “Self-focusing/defocusing of skew-cosh-Gaussian laser beam for collisional plasma”, *Laser Physics*, **34**, (2024) 036001.
4. **K. Y. Khandale**, P. T. Takale, S. S. Patil, P. P. Patil, S. D. Patil, M. V. Takale, “Role of uniform and exponential density profiles on propagation dynamics of q-Gaussian laser beams in underdense collisional plasma”, *Journal of Optics*, 1-7 (2023)  
<https://doi.org/10.1007/s12596-023-01406-4>
5. **K. Y. Khandale**, S. S. Patil, P. T. Takale, S. D. Patil, A. T. Valkunde, M. V. Takale, “Effect of critical beam power on self-focusing, self-trapping and defocusing of q-Gaussian laser beams in collisional plasma”, *Journal of Optics*, 1-8 (2024)  
<https://doi.org/10.1007/s12596-024-01773-6>
6. **K. Y. Khandale**, P. T. Takale, T. U. Urunkar, S. S. Patil, P. P. Nikam, M. B. Mane, V. S. Pawar, A. T. Valkunde, S. D. Patil, M. V. Takale, “On the Exploration of q Parameter in Propagation Dynamics of q-Gaussian laser beam in Underdense Collisional Plasma,” *Bulgarian Journal of Physics*, **49**, (2022) 375-385.  
<https://doi.org/10.55318/bgjp.2022.49.4.375>
7. **K. Y. Khandale**, P. T. Takale, T. U. Urunkar, S. S. Patil, P. P. Nikam, M. B. Mane, V. S. Pawar, S.D. Patil, M.V. Takale, “Self-Focusing of Gaussian Laser Beam in Collision less Plasma with Linear Absorption,” *International e-Conference on Recent Trends in Nano-Materials and Its Applications IJSRST*, 9, (2022) 14-19.
8. **K. Y. Khandale**, P. T. Takale, S. S. Patil, T. U. Urunkar, A. T. Valkunde, S. D. Patil, M. V. Takale, “Influence Of Critical Beam Power On Propagation Dynamics Of q-Gaussian Laser Beams In Isotropic Collisional Plasma,” *ICCTPP – 2022, Journal of Physics: Conference series, IOP Publishing*, (2022) **2426**, (2023) 012005.  
[doi:10.1088/1742-6596/2426/1/012005](https://doi.org/10.1088/1742-6596/2426/1/012005)
9. P. T. Takale, **K. Y. Khandale**, S. S. Patil, P. P. Nikam, V. S. Pawar, T. U. Urunkar, M. V. Takale, S. D. Patil, “Effect of q parameter and critical beam radius on propagation dynamics of q Gaussian Laser beam in cold quantum plasma,” in *Nonlinear Dynamics and Applications, ICNDA 2022, Springer Proceedings in Complexity*, ed. By S. Banerjee, A. Saha, (Springer, Cham. 2022), pp. 55–62 [https://doi.org/10.1007/978-3-030-99792-2\\_5](https://doi.org/10.1007/978-3-030-99792-2_5)

10. P. T. Takale, **K. Y. Khandale**, P. Nikam, S. Patil, T. Urunkar, V. Pawar, S. Patil, M. Takale, “Analytical exploration of domain-dependent propagation of skew cosh Gaussian laser beam in anisotropic plasma medium,” *Indian Journal of Physics*, **97** (6), 1849-1855, 2023. <https://doi.org/10.1007/s12648-022-02532-8>
11. P. T. Takale, **K. Y. Khandale**, S. S. Patil, S. D. Patil, M. V. Takale, “Study of Propagation of Skew Cosh Gaussian Laser Beam in Attenuated Magneto Plasma”, *Modern Physics Letter B*, **37**, 2350185 (2023).
12. S. S. Patil, **K. Y. Khandale**, P. T. Takale, M. B. Mane, P. P. Nikam, P. P. Shinde, P. P. Patil, M. V. Takale, S. D. Patil, “Self-focusing of Laguerre–Gaussian laser beams in collisionless plasma: paraxial-like approach”, *Journal of Optics*, 1-7 (2023) <https://doi.org/10.1007/s12596-023-01478-2>
13. P. P. Nikam, V. S. Pawar, P. T. Takale, **K. Y. Khandale**, S. S. Patil, M. B. Mane, S. D. Patil, M.V. Takale, “Effect of Asymmetry in the Modulation Parameters on Self-Focusing of Asymmetric Finite Airy-Gaussian Laser Beam in Collisionless Plasma,” *Indian Journal of Pure and Applied. Physics*, 60, 576–581 (2022)
14. M.B. Mane, S.S. Patil, P.T. Takale, **K.Y. Khandale**, P.P. Nikam, P.P. Patil, M.V. Takale, S.D. Patil, Propagation characters of dark and antidark Gaussian laser beams in collisionless magnetized plasma, *Journal of Optics*, 1-9 (2024). <https://doi.org/10.1007/s12596-024-01885-z>
15. S.P. Rajmane, B.D. Vhanmore, S.B. Sadale, **K.Y. Khandale**, S.D. Patil, M.V. Takale, A comparative study of extraordinary and ordinary modes in the presence of external magnetic field in self-focusing of higher-order mode  $TEM_{m,n}$  of elegant Hermite–cosh-Gaussian laser beams in collisionless plasma medium, *Journal of Optics*, 1-9 (2024). <https://doi.org/10.1007/s12596-024-01731-2>
16. S. S. Patil, **K. Y. Khandale**, P. T. Takale, P. P. Patil, M. V. Takale, S. D. Patil, Three Propagation Regimes of Laguerre-Gaussian Laser Beams in Collisionless Plasma, *Indian Journal of Physics*, **1-10**, (2024). <https://link.springer.com/article/10.1007/s12648-024-03326-w>
17. **K. Y. Khandale**, S. D. Patil, M. V. Takale, “Exploration of skewness parameter of skew-cosh-Gaussian laser beam propagating through collisionless plasma” *Results in Optics*, **16**, 100724, (2024) .
18. **K. Y. Khandale**, S. D. Patil, M. V. Takale, Self-Focusing of Skew Cosh Gaussian Laser Beams Propagation in Absorbing Collisionless and Collisional Plasmas, *Journal of Optics*, 1-12, (2024), <https://doi.org/10.1007/s12596-024-02121-4>

## **Declaration**

I hereby declare that the information and details given above are true the best of my knowledge.

Looking forward to work in your esteemed organisation.

Yours faithfully

(Kalyani Yashwant Khandale)

Place – Kolhapur

Date – 2024