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## Synopsis

- A professional Doctor of Philosophy (Ph.D.) from Shivaji University, Kolhapur (M.S.), India.
- Successfully qualified State Eligibility Test (SET) conducted by UGC.
- Gained theoretical understanding in Propagation Dynamics of Hermite cosh Gaussian Laser beam in various plasma media.
- Possesses knowledge of basic Softwares like Mathematica, Matlab, Latex and Python.
- Endowed with a passion for winning as evinced through demonstrated excellence in the academics.
- Technically sound with Windows and MS Office.
- An effective communicator with excellent relationship building and analytical skills.

## Scholastic

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- 2019 SET (Physics) conducted by Pune University(UGC)
- 2019 Ph.D. (Physics) from Shivaji University, Kolhapur
- 2015 M.Sc. (Solid State Physics) with distinction from Department of Physics, Shivaji University, Kolhapur.
- 2013 B.Sc. (Physics) from Swami Vivekanand College, Kolhapur.

## Achievement

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- Stood ninth in ranked list in B.Sc. in Shivaji University Kolhapur.

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## Highlights

- Expertise in handling Mathematica. and Solve the nonlinear Differential equations.
- Extensive experience in Solving Nonlinear Differential Equations.
- Good knowledge of various plasma media.



## Personal dossier

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### Address

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### Phone

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### Email

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### Marital Status

Unmarried

### Hobbies

Music, Swimming, Reading

### Languages Known

English, Hindi, Marathi

### Computer Literacy

- CCC

## Project Details

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I have successfully completed project work (M.Sc.) entitled “**To Study Theoretical Background and Recording Hologram**” under the guidance of **Prof. (Dr.) C. D. Lokhande**, Department of Physics, Shivaji University Kolhapur

## Title of Ph. D. work

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**Theoretical Investigations of Self-focusing/ Defocusing of Hermite-cosh-Gaussian Mode Laser Beams in Anisotropic and Absorbing plasma Media.**

## Experience

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**Assistant Professor** (CHB/Part-time) in Department of Physics, Vivekanand College, Kolhapur. **(July, 2015 to April, 2017)**

## Research Publication

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- 1 **T. U. Urunkar**, S. D. Patil, A. T. Valkunde, B. D. Vhanmore, K. M. Gavade, M. V. Takale, “Effect of Critical Beam Radius on Self-focusing of cosh-Gaussian Laser Beams in Collisionless Magnetized Plasma,” *Communication to Theoretical Physics*, **70**, (2018) 220-224.
- 2 **T. U. Urunkar**, S. D. Patil, A. T. Valkunde, B. D. Vhanmore, K. M. Gavade, M. V. Takale, “On the Exploration of Graphical and Analytical Investigations of Effect of Critical Beam Power on Self-focusing of cosh Gaussian Laser Beams in Magnetised Plasma,” *Laser and Particle Beam*, **36**, (2018) 254-260.
- 3 **T. U. Urunkar**, A. T. Valkunde, B. D. Vhanmore, K. M. Gavade, S. D. Patil, M. V. Takale, “On the exploration of effect of critical beam power propagation of Gaussian laser beam in collisionless magnetized plasma,” *AIP Conference Proceedings*, **1953**, (2018) 140087.
- 4 **T. U. Urunkar**, A. T. Valkunde, B. D. Vhanmore, K. M. Gavade, S. D. Patil, M. V. Takale, “Effect of Light Absorption and Critical Beam Power on Self-focusing of Gaussian Laser Beam in Collisionless Magnetized Plasma,” *AIP Conference Proceedings*, **(Accepted)**.

## Research Thrust area

Theoretical Physics  
Nonlinear Optics

## Personal Skills

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- ✓ Good Communication Skill and Leadership Qualities
- ✓ Good Time Management and Teamwork
- ✓ Good in Decision Making and Human Relations
- ✓ Willingness to Learn
- ✓ Hard Working

## Conference/Workshop

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- ❖ (NCRTN-2012) Kolhapur
- ❖ (FPPS-2016) Ujjain
- ❖ (ICABS-2019) Haryana

- 5 A. T. Valkunde, S. D. Patil, B. D. Vhanmore, **T. U. Urunkar**, K. M. Gavade, M. V. Takale, V. J. Fulari, "Analytical investigation on domain of decentered parameter for self-focusing of Hermite-cosh-Gaussian laser beam in collisional plasma," *Physics of Plasmas*, **25** (2018) 033102.
- 6 A. T. Valkunde, B. D. Vhanmore, **T. U. Urunkar**, K. M. Gavade, S. D. Patil, M. V. Takale, "Effect of exponential density transition on self-focusing of q-Gaussian laser beam in collisionless plasma," *AIP Conference Proceedings*, **1953**, (2018) 140088.
- 7 S. D. Patil, A. T. Valkunde, B. D. Vhanmore, **T. U. Urunkar**, K. M. Gavade, M. V. Takale, "Influence of light absorption on relativistic self focusing of Gaussian laser beam in cold quantum plasma," *AIP Conference Proceedings*, **1953**, (2018) 140046.
- 8 B. D. Vhanmore, A. T. Valkunde, **T. U. Urunkar**, K. M. Gavade, S. D. Patil, M. V. Takale, "Self-focusing of asymmetric cosh-Gaussian laser beams propagating through collisionless magnetized plasma," *Laser and Particle Beams*, **35** (2017) 670-676.
- 9 B. D. Vhanmore, A. T. Valkunde, **T. U. Urunkar**, K. M. Gavade, S. D. Patil, M. V. Takale, D. N. Gupta, "Effect of q-parameter on relativistic self-focusing of q-Gaussian laser beam in plasma", *Optik*, **158** (2018) 574-579.
- 10 B. D. Vhanmore, A. T. Valkunde, **T. U. Urunkar**, K. M. Gavade, S. D. Patil, M. V. Takale, "Effect of decentred parameter on self focusing of in the interaction of cosh Gaussian laser beams with collisionless magnetized plasma", *AIP Conference Proceedings*, **1953**, (2018) 140047.
- 11 S. D. Patil, A. T. Valkunde, B. D. Vhanmore, **T. U. Urunkar**, K. M. Gavade, M. V. Takale, "Exploration of temperature range for self-focusing of lowest-order Bessel-Gaussian laser beams in plasma with relativistic and ponderomotive regime," *AIP Conference Proceedings*, **(Accepted)**
- 12 B. D. Vhanmore, A. T. Valkunde, **T. U. Urunkar**, K. M. Gavade, S. D. Patil, M. V. Takale, "Self-focusing of asymmetric cosh-Gaussian laser beams in weakly ionized collisional magnetized plasma", *AIP Conference Proceedings*, **(Accepted)**.
- 13 K. M. Gavade, B. D. Vhanmore, A. T. Valkunde, **T. U. Urunkar**, S. D. Patil, M. V. Takale, "Effect of Light Absorption on Self-focusing of cosh Gaussian Laser Beam in Collisional Plasma," *AIP Conference Proceedings*, **(Accepted)**.
- 14 B. D. Vhanmore, A. T. Valkunde, **T. U. Urunkar**, K. M. Gavade, S. D. Patil, M. V. Takale, "Self-focusing of higher order asymmetric elegant Hermite cosh Gaussian laser beams in collisionless magnetized plasma", *European Physics Journal D*, **(Accepted)**.
- 15 K. M. Gavade, B. D. Vhanmore, A. T. Valkunde, **T. U. Urunkar**, S. D. Patil, M. V. Takale, "Self-focusing of asymmetric elegant Hermite cosh-Gaussian laser beams in plasma relativistic and ponderomotive regime", *AIP Conference Proceedings*, **(Accepted)**.

## **Referees**

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## **Declaration**

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

Looking forward to work in your esteemed concern

Yours faithfully

Place- Kolhapur

(Dr. Trupti Uday Urunkar)