

Shreyas PUNACHA

PERSONAL DATA

MARITAL STATUS : Married
CITIZENSHIP : Indian
EMAIL : shreyasp444@gmail.com
SEX : Male
ID : [ORCID](#)

EDUCATION

2021 Ph.D. in PHYSICS, **National Institute of Technology Karnataka**, Surathkal
Thesis: "Excitation wave dynamics and their interaction with external fields"
Advisor: Dr. T K SHAJAHAN
2014 Master of Science in PHYSICS, **Mangalore University**, Mangalore, Karnataka.
2012 Bachelor of Science in PHYSICS, **Vivekananda College**, Puttur, Karnataka.

COMPUTATIONAL SKILLS

NUMERICAL SOLUTIONS TO PDES | FINITE DIFFERENCE METHOD | PHASE FIELD METHOD
PARALLEL PROGRAMMING | MATHEMATICA | MESSAGE PASSING INTERFACE |
VERSION CONTROL | 3D MODELLING WITH MAYAVI
PROGRAMMING LANGUAGES: PYTHON | C | C++ | SHELL SCRIPTING | R
MARKUP LANGUAGES: LATEX | HTML

RESEARCH INTRESTS

PATTERN FORMATION IN EXCITABLE MEDIA | COMPUTATIONAL BIOLOGY |
CARDIAC ARRHYTHMIAS | LOW VOLTAGE DEFIBRILLATION | SPIRAL WAVES

EXPERIENCE

2016-2020	Mentored five Masters student projects with two leading to publications during the course of the Ph.D.
2017-2019	Teaching Assistant for M.Sc. COMPUTATIONAL PHYSICS course at NITK Surathkal.
2015-2017	Teaching Assistant for B.Tec. PHYSICS COURSE at NITK Surathkal.
2015-2016	Laboratory Teaching Assistant for M.Sc. PHYSICS LABORATORY at NITK Surathkal.
2015-2020	Laboratory Teaching Assistant for B.Tec. PHYSICS LABORATORY at NITK Surathkal.

PUBLICATIONS

1. **Shreyas Punacha**, Naveena Kumara A and T. K. Shajahan (2020). “ A theory of unpinning of spiral waves using circularly polarized electric fields in mathematical models of excitable media.” *Physical Review E*, 102(3), 032411.
2. Naveena Kumara A, Ahmed Rizwan C. L., **Shreyas Punacha**, Ajith K. M and Md Sabir Ali (2020). “ Photon Orbits and Thermodynamic Phase Transtion of Regular Ads Black Holes.” *Physical Review D*, 102, 084059.
3. **Shreyas Punacha**, Sebastian Berg, Anupama Sebastian, Valentin I Krinski, Stefan Luther and T. K. Shajahan (2019). “ Spiral wave unpinning facilitated by wave emitting sites in cardiac monolayers”. *Proceedings of Royal Society A*, 475 (2230) : 20190420.
4. **Shreyas Punacha**, M. Abhishek and T. K. Shajahan. (2019). “ Unpinning spiral wave anchored to two obstacle”. *Indian Academy of Sciences Conference Series*, 2.
5. Anupama Sebastian, S V Amrutha, **Shreyas Punacha** and T. K. Shajahan. (2022). “Dynamics of Chemical Excitation Waves Subjected to Subthreshold Electric Field in a Mathematical Model of the Belousov-Zhabotinsky Reaction” Accepted for Publication in Springer Proceedings in Complexity.

PREPRINTS

1. A. Naveena Kumara, **Shreyas Punacha**, Karteek Hegde, C. L. A. Rizwan, M. S. Ali and K. M. Ajith. (2021) “Dynamics and kinetics of phase transition for regular AdS black holes in general relativity coupled to non-linear electrodynamics”. *Submitted to Physical Review D*.
[arXiv:2106.11095]
2. Amrutha S V, Sibeesh P P, Anupama Sebastian, **Shreyas Punacha** and T K Shajahan. (2022) “Electrostatic Interaction-Induced Mechanism of Spiral Unpinning with Constant Electric Field in the Belousov-Zhabotinsky Reaction”. *Submitted to Journal of Physical Chemistry*.

SCHOLARSHIPS

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| 2017-2021 | Senior Research Fellowship, Ministry of Human Resource Development, National Institute of Technology Karnataka, Surathkal, India. |
| 2015-2017 | Junior Research Fellowship, Ministry of Human Resource Development, National Institute of Technology Karnataka, Surathkal, India. |
| 2009-2012 | Basic Science Fellowship, Department of Collegiate Education, Government of Karnataka, India. |

SCHOOLS AND CONFERENCES

- 2018 Conference on Nonlinear Systems and Dynamics
Jawaharlal Nehru University, New Mehrauli Road, Delhi.
- 2018 IFCAM Summer School on Mathematical and Computational Biology
Indo-French Centre for Applied Mathematics,
Indian Institute of Science, Bangalore.
- 2016 4th Winter School on Nonlinear Dynamics
PSG college Coimbatore, Tamilnadu, India.
- 2013 Workshop on Quantum Mechanics and Applications
National Institute of Technology Surathkal, Karnataka, India.
- 2011 National Conference in Physics (CAPSRAA)
Govinda Dasa First Grade College, Surathkal, Karnataka, India.

LANGUAGES

KONKANI: Mother tongue
KANNADA: Native
TULU: Native
HINDI: Fluent
ENGLISH: Fluent
GERMAN: Level A1

EXTRAS

SETUP A 28 CORE DELL SERVER IN THE PHYSICS LABORATORY.

COORDINATED A SCIENCE OUTREACH INITIATIVE "THE PRINCIPIA" FOR HIGH SCHOOL STUDENTS IN KARNATAKA AND KERALA STATES OF INDIA.

AMATEUR BIRD PHOTOGRAPHER.

EBIRDER - AN ACTIVE PARTICIPANT IN [eBird](#), A CITIZEN SCIENCE PROJECT FOR BIRD OBSERVATION FROM CORNELL LAB OF ORNITHOLOGY.

REFERENCES

1. DR. T. K SHAJAHAN
ASSISTANT PROFESSOR
DEPARTMENT OF PHYSICS
NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA (NITK), SURATHKAL
MANGALORE - 575025, KARNATAKA, INDIA.
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2. DR. AJITH K M

ASSOCIATE PROFESSOR

DEPARTMENT OF PHYSICS

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MANGALORE - 575 025, KARNATAKA, INDIA.

EMAIL : ajith@nitk.ac.in

3. DR. DEEPU VIJAYASENAN

ASSOCIATE PROFESSOR

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA (NITK), SURATHKAL

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