

I-STEM Software Request - Guide Approval Form

User Details

- **Name of Researcher:** ___ Mr. Satyabrata Sahu
- **User Type:** Ph.D. Scholar
- **Institution Name** : ___ Department of Physics, Pondicherry University
- **Institutional Contact No:** ___ 8018149480
- **Research Topic:** ___ Nonlinear Optics

Software Request Details

- **Software Name:** ___ COMSOL Multiphysics with following add-ons
 1. Wave Optics Module
 2. Ray Optics Module
 3. Material Library
 4. Liquid & Gas Properties Module
- **Justification for Software Request:** Attached

Guide/Supervisor Approval

I, Prof. R Sivakumar (Guide),

- Confirm that the above-mentioned researcher is affiliated with our institution
- Have reviewed the software request and its relevance to the researcher's academic work
- Approve the software request for research purposes

Approval Confirmation

- I approve the software request
- The software aligns with the researcher's research objectives
- The request meets the institutional research guidelines

Guide/Supervisor Signature: RS

Date: 17/05/25

Official Stamp/Seal: [Space for Institutional Stamp]

Dr. R. SIVAKUMAR
Professor
Department of Physics
Pondicherry University
Puducherry - 605 014

Important Notes

1. This form must be signed and scanned
2. The scanned copy must be uploaded with the software request
3. Electronic signatures are acceptable if from an official institutional email

I-STEM software Request for COMSOL Multiphysics software

I am Satyabrata Sahu, currently doing my research in the field of Nonlinear optics with a specific focus on pulse propagation in photonic crystal fiber (PCF) and rogue wave formation in nonlinear systems. I also investigate the dynamics of pulse evolution in PCF and explore the role of higher-order dispersion in the nonlinear system (PCF) governed by the nonlinear Schrodinger Equation.

To simulate the phenomenon accurately, I seek access to COMSOL Multiphysics with the wave optics module for modelling microstructure photonic crystal fibers, mode confinement, and determining the effective refractive index. COMSOL's parametric sweep, eigenfrequency analysis, and geometry modelling are essential for designing PCF and waveguides. Its ability to solve coupled partial differential equations would be helpful to our research.

I believe COMSOL will significantly enhance the quality and scope of my research, enabling deeper insights and better visualization of complex nonlinear phenomena. I kindly request access to COMSOL Multiphysics to support my ongoing work. The required modules are as follows,

1. Wave Optics Module
2. Ray Optics Module
3. Material Library
4. Liquid & Gas Properties Module

Sincerely

Satyabrata Sahu
Satyabrata Sahu
Ph.D. Scholar,
Department of Physics
Pondicherry University

Forwarded
17/05/25