

I-STEM Software Request - Guide Approval Form

User Details

- **Name of Researcher:** Snehashis Sadhukhan
- **User Type:** Postdoctoral Researcher
- **Institution Name:** Mahindra University
- **Institutional Contact No:** 040 – 67135100
- **Research Topic:** Photonic Crystals, Topological Photonics, Photonic Time Crystals, Nonlinear and Disordered Photonic Systems

Software Request Details

- **Software Name:** COMSOL Multiphysics
- **Justification for Software Request:** My research focuses on photonic crystals, photonic time crystals, topological photonics, nonlinear optics, and wave propagation in disordered photonic media. The research involves rigorous numerical modeling of electromagnetic wave propagation, optical amplification, topological edge states, light localization, photonic sensing devices, and complex light-matter interactions.

COMSOL Multiphysics is required to perform finite-element-based simulations of electromagnetic fields and photonic structures, enabling accurate analysis of wave propagation, resonance characteristics, optical confinement, and multiphysics effects in advanced photonic devices. The software will be used for designing and optimizing photonic crystal structures, investigating topological and time-varying photonic systems, studying nonlinear optical phenomena, and developing photonic sensing platforms.

The availability of COMSOL Multiphysics will significantly enhance the computational aspect of my research by providing a robust simulation environment for solving Maxwell's equations in complex geometries and validating theoretical predictions. The software is therefore essential for achieving the objectives of my advanced research and for publishing high-quality research outcomes in the field of photonics.

Guide/Supervisor Approval

I, Prof. Somnath Ghosh,

- 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: Somnath Ghosh

Date: 30/5/26

Official Stamp/Seal:

[Space for Institutional Stamp]



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