

I-STEM Software Request - Guide Approval Form

User Details

- Name of Researcher: Nilay Patel
- User Type: ☐ Ph.D. Scholar ☐ Postdoctoral Researcher ☒ Bachelor's ☐ Masters
- Institution Name: Ahmedabad University
- Institutional Contact No: +917961911000/200/201
- Research Topic: Computational model of a Capacitively and Inductively Coupled Plasma

Software Request Details

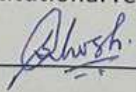
- Software Name: COMSOL Multiphysics
- Justification for Software Request: The purpose of my research work involves advanced simulation of a Capacitively and Inductively Coupled Plasma using an RF source. A complex non-equilibrium system like a Capacitively and Inductively Coupled Plasma which is governed by several complex differential equations like those for heavy species transport, Boltzmann equation with collisional term, energy conservation equation etc, COMSOL Multiphysics provides a remarkable Plasma Physics module wherein one can model their physical system and solve these equations through the system's mathematical models. One of the other major advantages of using COMSOL Multiphysics is it would allow me to obtain the number density and temperature profiles of the CCP and ICP [Capacitively and Inductively Coupled Plasma] through the software's results section where I can also plot other parameters' evolution over time. I can benefit from this software as my model is driven by a radio frequency source, hence I can also use the RF Module extensively with the before mentioned Plasma Module. Visualization and analysis would be extremely helpful in comparing these computational results with actual experimental data.
- Guide/Supervisor Approval

I, Dr. Soumen Ghosh (Guide/Supervisor Name),

- 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: 

Date: May 26, 2025

Official Stamp/Seal: [Space for Institutional Stamp]

