Thematic Research Laboratory on Computational Physics

Computational Physics is one of the prime branches of theoretical sciences with rapidly increasing attention of scientific community in recent decades. The Computational Physics borrows its core ideas largely from mathematics and computer science, and helps in resolving the mysteries of Physics. Development and application of theoretical modelling, numerical algorithms, and programming are key components of Computational Physics and, therefore, the proposed Thematic Research Laboratory on Computational Physics offers excellent resources for our students, faculties, and visitors.

The Computational Physics laboratory is being developed with several state-of-the-art HPC workstations. A number of computational and simulation programs including LAMMPS, GROMACS, QUANTUM-ESPRESSO, VMD, MATLAB®, and Mathematica® will be made available to the users of Computational Physic Laboratory. The recommended workflow of research activities in this laboratory includes: ideate the research problem, develop model/algorithm, write a code/script, execute the job on a workstation, analyse and visualize computer generated data; and finally, test/produce/analyse the computational results.

The Computational Physics laboratory will be primarily utilized by research scholars, postdoctoral students, faculties, and visitors of the Department for teaching, training, and research activities. The laboratory aims to foster collaboration from research groups working in diverse areas of science including physics, chemistry, biology, computer science, and engineering across the Institute. Furthermore, the laboratory intends to support and enhance the research activities within and outside IIT Jodhpur by promoting collaborations which are highly interdisciplinary in nature.