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The Center for Computational Sciences, Sichuan Normal University

Location

Sichuan Normal University
Chenglong Campus
Chengdu, China

Further Information: www.sicnu.edu.cn

Overview

The Center for Computational Sciences (CCS) is a newly established research center located at the Chenglong campus of Sichuan Normal University in Chengdu, the capital city of Sichuan Province. CCS is devoted primarily to scientific computation in natural science and engineering, development of advanced techniques for computational materials science, electronics and optics, computational mathematics, machine learning methods and scientific software. The current scientific co-directors of CCS are Prof. Guo Hong (郭鸿) (www.physics.mcgill.ca/∼guo) who is an alumnus of Sichuan Normal University, and Prof. Zhao Yonghong (赵永红).

Current members at CCS conduct a wide range of research, including:

Computational electronics

Full spectrum of computational research on modeling and simulation of modern electronics, especially nanoelectronics; developments of first principles based device simulators, quantum device physics, emerging device structures and concepts, 2D semiconductors, encompassing optical, electronic, mechanical, and quantum mechanical aspects of device physics.

Computational quantum optics

Current work is focused on modeling and simulation of opto-mechanics, linear/nonlinear optical transmissions in cavities, computational electromagnetics, and light-matter interactions. We are developing a unified quantum optics simulator OMPY which automatically generates and solves Langivan equation of motion both analytically and numerically.

Computational materials science

Full spectrum of computational research on materials science, especially on emerging materials, correlated materials, topological materials, industrial materials. A focus of current work is to develop parallel computation techniques for real space density functional theory methods for solving large systems, and computational techniques for solving correlated many-body problems.

Machine learning for material and statistic physics

Application of deep neural network methods to materials and statistical physics, combined with density functional theory, Monte Carlo, molecular dynamics and other simulation techniques to achieve data-to-knowledge conversion.