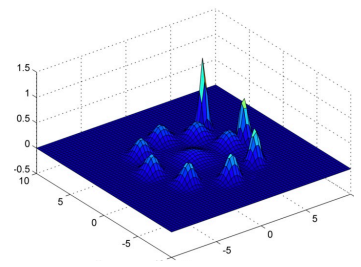


# Computational Physics II

Course code: PHYS 5990, Section B  
CRN 15072, Hours: TR 14:50 - 16:05



## Prerequisites:

Graduate standing, or [Fundamentals of Physics (PHYS 1650 or equivalent), Thermal Physics (PHYS 3400 or equivalent), and Ordinary Differential Equations (MATH 3230 or equivalent)]

## Overview:

Students will be introduced to cutting edge computational techniques and develop problem solving skills for questions in physics and related fields. There will be a large programming component and hands-on sections in this course. Grading: Homework (50%), Final project (45%), Attendance (5%)

## Specific topics:

- \* Overview of Python and matplotlib
- \* Introduction to numerical differentiation and integration
- \* ODE applications in physics
- \* Monte Carlo sampling
- \* Molecular dynamics
- \* Polymer modeling
- \* Bayesian inference
- \* Machine learning (supervised, unsupervised, and reinforcement learning)
- \* Physics-based deep learning

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**Feel free to send me an email if you want to know more about the course or have trouble registering the course.**