

# Mini-course on “Theoretical and Computational Methods in Plasma Physics”

46<sup>th</sup> Annual

**ICOPS**

**Organizer: Arati Dasgupta (NRL)**

**June 22-June 23, 2019**

**DoubleTree at the Entrance to Universal Orlando  
Orlando, Florida; Room: Space Coast I**



As part of the International IEEE Conference on Pulsed Power and Plasma Science 2019, a special mini-course on “Theoretical and Computational Plasma Physics” will be offered. This mini-course will be tutorial in nature and it will cover topics in fundamental research on theoretical modeling, and computational approaches to understand experimental findings. It will play an enabling role in bringing together experts in the fields so as to ensure optimal coordination among the fields. Participants at this conference will acquire a broad range of knowledge and skills that will enable them to contribute to investigate many areas of plasma science and technology.

## Topics and speakers

### Introduction to spectra

**Arati Dasgupta (NRL)**

### Understanding and using non-LTE atomic and radiation kinetics for plasma

**Howard Scott (LLNL)**

### Modeling non-LTE plasmas for X-ray Spectroscopy

**Nicholas Quart (NRL)**

### Quantum Mechanical Simulations of Warm, Dense Matter

**Lee Collins (LANL)**

### Hydrodynamics Simulation of High Energy Density Plasmas

**Radha Bahukutumbi (LLE)**

### Hall Physics in HED Plasmas

**Charles Seyler (Cornell U.)**

### Deep Learning: techniques for practitioners in the plasma sciences

**Brian Spears (LLNL)**

### A tutorial on HEDP modeling with FLASH: How to design and interpret laboratory experiments using numerical simulations

**Petros Tzeferacos (U. Chicago)**

### PIC Methods and Results in Plasma Simulations

**Dale Welch (Voss Scientific)**

### Computational Methods for Modeling Vacuum Electronic and High-Power Microwave Devices

**Simon Cooke (NRL)**

### Microscale to Nanoscale Gas Breakdown: From Paschen’s Law to Schrödinger’s Equation

**Allen Garner (Purdue U.)**

