

# Scientific Computing Bootcamp

*Application to Plasma Physics and Nuclear Fusion*

February 26<sup>th</sup> - March 2<sup>nd</sup> 2018

*Sant Fe Business Incubator, 3900 Paseo Del Sol, Santa Fe, NM 87507*

An introduction to the scientific computing tools that plasma physicists use regularly in addressing some of today's most pressing challenges.

*Intended audience:* undergraduate students with at least some computing familiarity and an interest in pursuing high performance computing in their careers.

## *Topics:*

- Grand challenges in computations plasma physics
- Overall process of computational simulation
- Historical context
- Introduction to plasma physics research & development codes
- Compiling and debugging, including Make, FORTRAN
- High performance computing and best practices
- Visualization and post-processing tools, including Octave and Python
- Partial differential equations, the finite element method
- Verification and validation in scientific computing
- Contemporary issues
- Exascale computing

For information please see <http://www.woodruffscientific.com/shortcourse>

Applications will be accepted through February 20<sup>th</sup> 2018.

*"Attending the Scientific Computing Bootcamp at Woodruff Scientific was an incredible learning experience, and tons of fun! I was able to connect with industry experts and learn many fundamentals of scientific computing—as well as their respective applications. Even if you have no prior knowledge of plasma physics or nuclear fusion, I highly recommend applying to this opportunity!" Hannah Misener*

*"Woodruff Scientific Computing Bootcamp was a safe and inviting place to learn about scientific computing basics, plasma physics, and broader applications of the two. Expect to broaden your understanding with in-depth tutorials, great speakers, diverse content, and a lot of fun!" Danielle Lemmon, BSc Physics, University of Washington*

*"It was a lot of fun and you guys did a great job of exposing the problems in the field and giving us an appreciation for the scale that all of that happens at, from the cost to the temperature, to computing resources, it takes a lot of time. As a CSE student the intro to parallelization was really cool and the basic intro to using a unix terminal served me well. I have definitely recommend the camp to friends and would recommend it to anyone in an interest in physics, applied math, or CSE." Ben Gardon, BSc CSE University of Washington*