Related Courses

ECE 485, Fusion Technology

ECE 534, Plasma Physics I

ECE 535, Plasma Physics II

ECE 553L, Experimental Techniques in Plasma Science

ECE 555, Gaseous Electronics

ECE 557, Pulsed Power and Charged Particle Accelerators

ECE 558, Charged Particle Beams and High Power Microwave Devices

ECE 560, Microwave Engineering

ECE 561, Electrodynamics

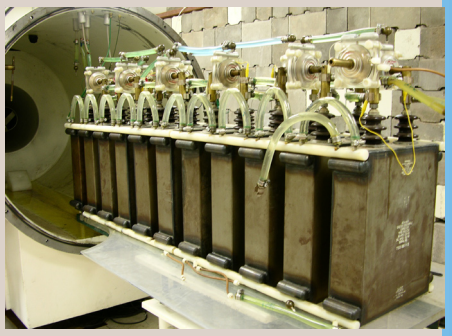
ECE 562, RF Electronics

ECE 563, Computational Methods in Electromagnetics

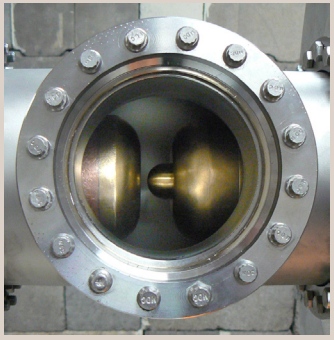
ECE 569, Antennas

ECE 580, Advanced Plasma Physics

ECE 661, Advanced Topics in Electromagnetics



Above image, top: *HELCAT (HELicon-CAThode) 4-meter-long basic plasma physics research device at the UNM Plasma & Fusion Science Lab.* ***Above center:*** *500 kV Marx generator at the UNM Pulsed Power, Beams & Microwaves Lab.* ***Below:*** *Low-inductance oil switch designed to generate a high-voltage pulse with sharp risetime on the Marx generator above.*



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Research at UNM

The University of New Mexico is actively involved with research in pulsed power and plasma science within its Electrical and Computer Engineering Department.

UNM has ongoing collaborations with New Mexico's national labs and with local high-tech industry.

Research is conducted by faculty and graduate students in four labs in the department as well as on site at Sandia National Laboratories, the Air Force Research Lab, and Los Alamos National Laboratory.

Many of our students find jobs at New Mexico's federal labs after graduation.

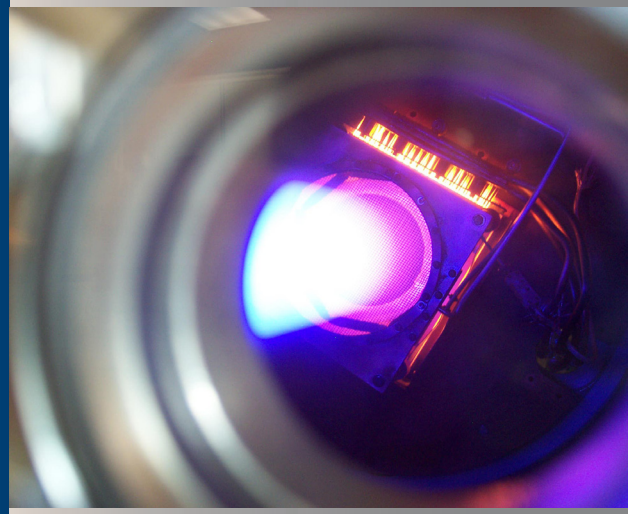
Graduate research assistantships are available.

UNM Applied Electromagnetics Group

THE UNIVERSITY of NEW MEXICO

Graduate Studies in Pulsed Power & Plasma Science

at the University of New Mexico



Above: *Hot-cathode-generated argon plasma in the UNM Plasma & Fusion Science Lab.* ***Below:*** *A "transparent cathode" invented at UNM is used to drive high-power magnetrons with greatly enhanced performance.*

Pulsed Power & Plasma Science at UNM

Current Areas of Research

Pulsed-power technology

Pulsed-power applications

Intense electron beams

High-power microwave sources

Modeling electromagnetic threats to infrastructure

Wideband radiating systems

Computational electromagnetics

Basic plasma physics

Magnetic and inertial confinement fusion

Ionospheric characterization and modeling

Research Sponsors

Air Force Office of Scientific Research

Air Force Research Laboratory

Department of Energy

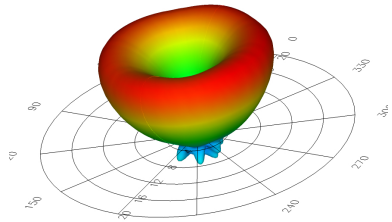
Ktech Corporation

Los Alamos National Laboratory

National Science Foundation

Office of Naval Research

Sandia National Laboratories



Pulsed Power & Plasma Science Faculty

Carl Baum, Distinguished Research Professor	Electromagnetics
C. Jerald Buchenauer, Research Professor	Time-domain electromagnetics, electromagnetic modeling, pulsed power technologies, rf remote sensing, and plasma diagnostics
Christos Christodoulou, Professor	Modeling of electromagnetic systems, phased array antennas, antennas for wireless communications, microwave systems and applications of neural networks in electromagnetics
David Dietz, Research Professor	Network modeling, electromagnetic interference in circuits, statistical electromagnetics, complex system theory and chaotic dynamics
Zhaomei Feng, Research Assistant Professor	Radio-wave remote sensing and radar studies of the atmosphere and ionosphere, electromagnetic modeling
Mikhail Fuks, Research Professor	High-power microwave source physics, electrodynamic systems, charged particle beams
John Gaudet, Research Professor	High-power microwave devices, chaos in electronic devices, circuits and systems, electromagnetic coupling to cavities, pulsed power
Mark Gilmore, Assistant Professor	Basic plasma physics, magnetic confinement fusion, plasma diagnostics, plasma physics of pulsed power, microwave systems, complex systems
Alan Lynn, Research Assistant Professor	Basic plasma physics, plasma diagnostics, astrophysical-related laboratory plasmas, magnetic confinement fusion, plasma pulsed-power applications
Edl Schamiloglu, Professor	Physics and technology of charged particle beam generation and propagation, high power microwave sources and effects, pulsed power science and technologies, plasma physics and diagnostics, electromagnetics and wave propagation, infrastructure surety and complex systems
Jamesina Simpson, Assistant Professor	Computational electromagnetics theory and applications, especially finite-difference time-domain solutions of Maxwell's equations; current research topics range from near-DC to light.
Christopher Watts, Research Associate Professor	Laboratory studies of astrophysical plasmas, ionospheric physics, basic plasma physics, magnetic confinement fusion, plasma diagnostics (microwave, spectroscopy), chaos and nonlinear dynamics

Above: *The City of Albuquerque.* ***Below:*** *The Sandia Mountains seen from the Rio Grande.*

The American Southwest

Albuquerque is located on the Rio Grande at the foot of New Mexico's Sandia Mountains, and outdoor activities such as hiking, skiing, kayaking and mountain biking are as close as 15 minutes from campus. It is a culturally diverse city with a population of about 700,000.

Albuquerque is #1 on Forbes' list of Best Places for Business & Careers (May 2006), and on Bizjournals.com's Top 10 list of America's Smartest Cities (June 2006).

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Albuquerque is the #1 "Best Place for Business & Careers" *Forbes 2006*