



SACRAMENTO STATE

Department of Physics & Astronomy Spring 2009

Physics Colloquium Series

"The Education-Research Continuum – 40 years as a Fusion Physicist"

When to start the clock to keep track of a career in physics is a personal choice. How one chooses what physics research field to devote a career to is also personal in nature. Within the field of plasma physics for fusion energy in the laboratory, one becomes first a student, then a researcher, and along the way an educator not only for others, but for oneself as well. The magnetic fusion energy (MFE) community has launched an international project to build a tokamak magnetic confinement facility (ITER) to demonstrate MFE fusion burn with net power gain (<http://iter.org>). The National Ignition Facility - NIF project (<http://lasers.llnl.gov>) at Lawrence Livermore National Laboratory was just completed (March 31, 2009) and already has demonstrated 1.1 million joules (MJ) of laser energy at 1/3 micron wavelength from its 192 individual beams into the NIF 10 meter diameter target chamber. The 1.1 MJ laser pulse precisely matched the 30 nanosec temporal shape necessary for achieving inertial confinement fusion (ICF) ignition (propagating fusion burn), and ultimately net energy gain, from ICF cryogenic fusion fuel targets. When ICF ignition is achieved on NIF, the scientific demonstration for inertial fusion energy (IFE) will have been demonstrated. Although many more years are needed for both MFE and IFE to transition from science to engineering to commercialization, fusion research into new energy options for the future is more important today than any other time in its history.

Don Correll

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Cal State East Bay, Adjunct Professor**

**Thursday, April 23, 2009
4:00-5:20 PM - MND 1015**

Open & Free to all Students, Faculty & Public