

UCLA Department of Physics & Astronomy

COLLOQUIUM

Thursday, February 23 at 4 p.m.
1-434 PAB

SPARC and the High-field Path to Fusion Energy

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The advent of REBCO high-temperature superconductors at commercial scale has changed the development path for producing fusion energy with magnetic confinement.

The design and test of a large-bore $B > 20$ tesla peak field superconducting magnet at MIT PSFC, in collaboration with Commonwealth Fusion Systems, realizes a doubling of the allowed B field compared to previous state of the art. This realizes extremely large gains in fusion power density scales as B^4 and access to ignition as $\sim B^5$ at fixed plasma physics.

These gains in turn allow for operation away from limits, yet in much smaller and less expensive devices. CFS is presently constructing the high-B tokamak SPARC outside Boston with MIT as its major scientific collaborator, with the goal of demonstrating high fusion energy gain and fusion power density that propels fusion into the commercial energy sector. In addition to describing SPARC, parallel key fusion technology development programs will be described.

Refreshments at 3:30 p.m. on the PAB Patio. Undergraduates Welcome!