PHYSICS AND ASTRONOMY

COLLOQUIUM

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"Wakefield Acceleration: Reaching Beyond the Giga-Electron-Volt-Per-Meter Frontier"

Abstract

The field of advanced accelerators, pushed by compelling applications in high energy physics, advanced light sources, imaging sciences, medicine and industry, is making rapid strides. This talk gives an introduction of recent progress in frontier acceleration techniques, based on wakefields, which may be seen as a generalized Cerenkov mechanism. These wakefields are radiated coherently into wave-supporting media or structures — ranging from dielectrics in photonic configurations to dense plasmas — that extend beyond current concepts in linear acceleration that have been dominant for over a half-century. We review recent and current results obtained, as well as steps forward in associated beam physics and technology. Prospects for disruptive new applications enabled by advanced accelerators are discussed.

Wednesday, November 2, 2016
3:00 p.m.
Elliott Building
Room 167