APR08-2007-030043

Abstract for an Invited Paper
for the APR08 Meeting of
the American Physical Society

SCRF and Other Technological/Conceptual Developments with Applications to Nuclear Physics Facilities

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We highlight the recent developments in the science and technology of microwave superconducting radio-frequency cavities, novel concepts in particle colliders and other related technologies. This will be followed by an overview of their potential applications to high energy, high luminosity fixed target accelerators or colliders for various nuclear physics applications of electron-hadron, electron-nucleus and electron-heavy ion collisions. These facilities, designed to explore the dynamics of quarks and gluons deep inside a nucleon, could materialise at several laboratories around the world such as a possible Large electron-Hadron Collider (LHeC) at CERN, a possible electron-ion collider at BNL or Jefferson Lab, the planned 12 GeV upgrade of CEBAF and future rare isotope facilities.