AbstractID: 11987 Title: Dielectric Wall Accelerators for Proton Therapy

A new type of compact induction accelerator is under development at the Lawrence Livermore National Laboratory that promises to increase the average accelerating gradient by at least an order of magnitude over that of existing induction machines. The machine is based on the use of high gradient vacuum insulators, advanced dielectric materials and switches and is being developed for a variety of applications. Research describing an extreme variant of this technology aimed at producing a compact, variable output linear accelerator for proton therapy for cancer will be described along with the technical challenges and issues. The goal of the development is to produce a proton accelerator that will fit in a standard linac vault and deliver intensity modulated proton therapy. Tomotherapy, Inc. has licensed the new accelerator technology from the Lawrence Livermore National Laboratory and the Compact Particle Acceleration Corporation (CPAC) is supporting development of the system. Research sponsored by Tomotherapy, Inc. and CPAC.

Conflict of Interest: Some of the co-authors have a financial interest in Tomotherapy, Inc. and/or CPAC.