Barry Berman Memorial Lecture
“Proton Therapy”
Dr. Thomas R. Bortfeld
Professor, Harvard Medical School and Chief of the Radiation Biophysics Division
at Massachusetts General Hospital

Proton therapy has come a long way since its invention by Robert Wilson in 1946. Due to the physical characteristics of the Bragg peak, proton therapy is much better suited for the treatment of cancer than exponentially attenuated x-rays. Today 80 proton facilities treat 20,000 patients per year worldwide. However, less than 1% of all radiotherapy patients receive protons, which is primarily due to the higher cost of proton therapy. We will discuss the physics of making proton therapy more precise, more compact, and more affordable for many more patients. In particular, we will discuss how to detect and correct the range of proton beams in the patient through tissue activation, prompt gamma radiation, and acoustic waves. We will also present efforts to shrink the size and reduce the price of proton therapy by laser acceleration, use of more compact gantries, and advancement of gantry-less systems.

When:
Thursday, April 11th, 2019 4:00 pm

Where:
Cornelius Bennhold Auditorium
Corcoran Hall, 101
725 21st Street, N.W.
Washington, D.C. 20052

About the Speaker:
Dr. Bortfeld received his Ph.D. in Physics from the University of Heidelberg, Germany, in 1990. He started his career at the German Cancer Research Center (DKFZ) in Medical Physics, interrupted by a short postdoctoral fellowship at the MD Anderson Cancer Center. He was instrumental in the early development of intensity-modulated radiation therapy (IMRT). Since 2001, Dr. Bortfeld has been at the Massachusetts General Hospital (MGH) in Boston, where he has developed and deployed multi-criteria optimization and robust optimization of treatment
plans. In 2008 he was promoted to Professor at the Harvard Medical School and Chief of the Radiation Biophysics Division at MGH. His current research interests are imaging-guided temporo-spatial optimization of treatment delivery, better ways to define the clinical target volume, and making the benefits of proton therapy available to more patients.

About the Lecture Series:

In 2011, The Barry Berman Memorial Lecture Series was created through a generous gift by one of his close collaborators and colleagues, Professor Cedric Yu, a faculty member at the University of Maryland School of Medicine, Department of Radiation Oncology. Professors Berman and Yu formally worked together under a NIH-funded project on radiation cancer therapy. The goal of the lecture series is to inspire young people to study medical physics, by inviting nationally and internationally prominent scientists to speak on the application of physics principles to medicine.

The George Washington University Physics Department:

The GW Physics Department has a strong commitment to undergraduate and graduate education and has active research programs in astrophysics, biophysics, nuclear physics, and physics education. For more information on the Physics Department and a link to our most recent Newsletter, please go to http://physics.columbian.gwu.edu. Each gift, no matter how large or small, makes a positive impact on our educational mission and furthers our standing as a dynamic and growing physics department in one of the world’s outstanding universities. If you would like to contribute to this fund or another department initiative, you may make a gift to the Department in a number of ways:

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In memoriam:

Professor Berman joined the Physics Department in the Fall of 1985, already an accomplished physicist, having made ground-breaking studies of atomic nuclei. His intellectual capacities and love of science led him to contribute to a vast array of topics, including fundamental research in medium and high energy nuclear physics, especially few-body nuclear physics, as well as applied physics in lunar geology, medical diagnostics and cancer radiotherapy, materials characterization and identification, and radiological and nuclear threat reduction. He was elected Chairman of the Physics Department multiple times and elected Columbian Professor of the Natural and Mathematical Sciences in 1998. Professor Berman was elected a Fellow of the American Physical Society in 1972 and authored or co-authored 244 refereed publications in physics, 430 papers in total. After a year-long and heroic struggle, GW Professor of Physics and Department Chair, Barry Berman, died July 20, 2010.