The Department of Physics is pleased to announce

The 2014 Barry Berman Memorial Lecture

How to Hit HIV Where it Hurts

Arup K. Chakraborty, Ph. D, and Robert T. Haslam Professor of Chemical Engineering, Chemistry, and Biological Engineering at MIT

HIV continues to wreak havoc around the world, especially in poor countries. A vaccine is urgently needed to overcome this major global health challenge. I will describe key challenges that must be confronted to achieve this goal. I will then focus on some work that aims to address a part of these challenges by bringing together theory and computation (rooted in statistical physics), consideration of structures of multi-protein assemblies, basic immunology, and human clinical data. The results of these studies suggest the design of immunogens that could be components of vaccines that might elicit immune responses which might be able to hit HIV where it hurts upon natural infection. I shall also briefly touch upon some scaling laws that describe HIV evolution, which are reminiscent of Hopfield dynamics and other branches of physics.

When:        Where:
Thursday, April 3rd, 2014      Corcoran Hall 101
4:00 pm                         725 21st Street, NW

About the Speaker:

Arup K. Chakraborty is the Robert T. Haslam Professor of Chemical Engineering, Chemistry, and Biological Engineering at MIT, and the founding Director of MIT’s new Institute for Medical Engineering and Science. He is also a founding member of the Ragon Institute of MIT, MGH, and Harvard, which is focused on multi-disciplinary approaches to understand human immunology and develop a vaccine against HIV. After obtaining his PhD in chemical engineering at the University of Delaware, and postdoctoral studies at the University of Minnesota, he joined the faculty at the University of California at Berkeley in 1988. In September 2005, Arup moved to MIT. The central theme of his research has been the development and application of theoretical/computational approaches, rooted in physics and engineering, to study how T lymphocytes, orchestrators of the adaptive immune response, function. Arup’s work at the interface of the physical, life, and engineering sciences has been recognized by many honors that include a NIH Director’s Pioneer Award, the E.O. Lawrence Memorial Award for Life Sciences, the Allan P. Colburn and Professional Progress awards of the American Institute of Chemical Engineers, a Camille Dreyfus Teacher-Scholar award, a Miller Research Professorship, and a National Young Investigator award. Arup is a member of the National Academy of Engineering and a Fellow of the American Academy of Arts & Sciences and the American Association for the Advancement of Science.
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.

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:

- Securely online https://my.gwu.edu/mod/onlinegiving/
- By mailing your check, made out to The George Washington University and with the name of the department in the memo line, to: The George Washington University 2100 M Street NW, Suite 310 Washington, DC 20052
- By phone by calling the GW Annual Fund at 1-800-789-2611.

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.

http://departments.columbian.gwu.edu/physics/