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Michigan Institute for Plasma Science and Engineering

Thursday
September 19, 2013
2:00 pm
Room 1005
EECS Building

Dr. Vitaly Yakimenko

SLAC National Laboratory

Quasi-monoenergetic Plasma Wakefield Acceleration at FACET

Experiments using the high intensity 20 GeV electron beam at FACET (Facility for Advanced Accelerator Experimental Tests) at SLAC National Accelerator Laboratory have produced a number of exceptional results. FACET operates as a National User Facility delivering unique beams to a diverse community of users. Most recently acceleration of a witness bunch in a pre-ionized plasma was observed. In this talk, energy doubling in beam ionized noble gas plasmas and the generation of high-brightness beams through ionization injection will be discussed. GeV/m beam driven wakefields have also been measured in dielectric wakefield accelerator structures. Ideas to evolve the FACET facility targeting ultra-high gradient acceleration, high-brightness beam generation and extreme intensity mono-energetic gamma-ray beams will be presented.

About the Speaker: Vitaly Yakimenko is the FACET Division Director at the SLAC National Accelerator Laboratory. He earned his Ph.D. in accelerator physics from Novosibirsk Institute for Nuclear Physics in 1995, studying nonlinear effects on polarization in large colliders (HERA and LEP). He joined Brookhaven National Laboratory as a postdoc in 1996 and became Accelerator Test Facility Director in 2003. After 16 years at Brookhaven National Laboratory, Vitaly joined SLAC staff in October 2012. His research interests included high brightness photo injector, nonlinear dynamics, novel methods of acceleration and diagnostics of high brightness beams, FELs and high power lasers. Vitaly is the author or co-author of over 300 publications in referred journals and conference proceedings. He is a recipient of the 2012 IEEE Particle Accelerator Science and Technology award.