Los Alamos Dynamics
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**Abstract:** This talk starts with a brief overview of particle accelerators in general with a focus on the Los Alamos Neutron Science Center (LANSCE) linear accelerator and its many applications, such as neutron scattering, proton radiography, isotope production, etc. Basic principles of particle accelerator theory are then discussed, including modern approaches to acceleration and diagnosis of particle beams. The talk then focuses on control challenges faced by accelerator facilities and some of the advanced concepts being developed at LANSCE.

**Bio:** Alexander Scheinker is a staff member with the Low Level RF Control Group, at Los Alamos National Laboratory, where he has worked on implementing new ideas in adaptive control theory to the linear accelerator at the Los Alamos Neutron Science Center (LANSCE). His research interests include stability and optimization theory of complex, uncertain nonlinear systems, nonlinear dynamics, and various topics in particle accelerator physics, including nonlinear space-charge dominated beam dynamics and resonant RF accelerating structures. Alexander received B.A. degrees in Mathematics and Physics from Washington University in St. Louis in 2006, the M.A. degree in Mathematics from the University of California in San Diego in 2008, the M.S. degree in Physics from Indiana University in 2013, and a Ph.D. degree in Dynamic Systems and Control Theory from the University of California in San Diego, 2012.