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The planned search for free neutron-antineutron transformation using the nnbarX experiment at Fermilab and how it relates to bound neutron oscillations at Super-Kamiokande and elsewhere EDDIE BANUELOS, California State University, Dominguez Hills — In this presentation we will describe the role of CSUDH and present initial planning results on a new experiment at Fermilab called nnbarX that will use neutrons from a 1 MW cold spallation source near the Fermilab main accelerator ring which is being upgraded. This project will eventually probe theories of grand unification of the fundamental forces, the stability of matter, and how Baryons were created in the early stages of the big bang, at levels of sensitivity to the baryon lifetime that will be 100-10000 higher than what is currently available and will rule out or confirm leading theories of grand unification in which neutrons and other fermions are equally mixed with their antiparticles and can transform to each other in Right-Left symmetric theories such as SO(10). We at CSUDH will be directly collaborating with the University of Tennessee Knoxville, University of Indiana Bloomington, North Carolina State University, Femilab and Los Alamos National Laboratory on detector R & D for nnbarX and will be also working with a few other institutions in the US and in other countries.

Eddie Banuelos
California State University, Dominguez Hills

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