Abstract Submitted
for the APR15 Meeting of
The American Physical Society

Using XENON100 Data to Probe Dark Matter-Induced Electronic Recoils as an Explanation of the DAMA/LIBRA Anomaly MAYRA CERVANTES, Purdue Univ, XENON COLLABORATION — We use data from the XENON100 dark matter search to test the claim of the DAMA/LIBRA collaboration of a dark matter-induced signal in their detector. In the same (2 ? 6) keV window, the total background spectrum in XENON100 is lower than the total background in DAMA/LIBRA, and even lower than the observed DAMA/LIBRA modulation amplitude. We test three representative dark matter models that induce electronic recoils, in particular, WIMPs coupling to electrons through axial-vector interactions, mirror dark matter, and luminous dark matter. Furthermore, we analyze XENON100 data to set the first direct limit on WIMP axial-vector coupling to electrons.

Mayra Cervantes
Purdue Univ

Date submitted: 09 Jan 2015 Electronic form version 1.4