



## The GammeV Experiment:

A search for oscillations of photons into milli-eV mass particles

I present the first results of the GammeV experiment at Fermilab, a search for oscillations of laser photons into new weakly-interacting axion-like particles or paraxions. With our new apparatus, we are able to quickly cover a region of parameter space not previously excluded by the pioneering Brookhaven experiment, and test the particle interpretation of the recent anomalous PVLAS vacuum birefringence/dichroism signal. In the second stage of the experiment, we perform a search for mass-varying "chameleon" particles with dilaton-like couplings to the energy-momentum tensor. Laser experiments such as GammeV extend the frontier of weakly-coupled physics and represent one of the only few available laboratory probes of the milli-eV dark energy scale.



Aaron Chou, New York University

