Contribution ID: **30** Type: **not specified**

Running in the Dark Sector

Tuesday, 23 June 2015 17:35 (20 minutes)

The dark photon can become effectively invisible if it primarily decays into light dark matter states. Such a scenario may allow for production and detection of
these states at fixed target experiments. We point out that in the presence of the light states, the dark U(1) coupling constant may exhibit significant running, as
a function of momentum transfer, over the kinematic range of the experiments. In typical models, an associated running is also induced in the kinetic mixing
parameter that connects the dark and the visible sectors. The combined running of these parameters could probe the spectrum of light dark particles and also
substantially modify some existing predictions for the above experiments. We also outline theoretical considerations that can imply upper bounds on the low energy
value of the dark U(1) coupling.

Primary author: Dr DAVOUDIASL, Hooman (BNL)

Co-author: Dr MARCIANO, William (BNL)

Presenter: Dr DAVOUDIASL, Hooman (BNL)