



## High Energy Physics Lunch Seminar

# Sam McDermott

Fermilab

## "Supernova Bounds on Dark Sectors"

Host: Andrew Hearin

April 9, 2019 – 12:00 p.m.-1:00p.m. Building 362/F-108

### Abstract:

Supernova 1987A created an environment of extremely high temperatures and nucleon densities. The rough agreement between predictions of core collapse models and observations of a "neutrino burst" provide an opportunity to set bounds on a wide range of theories of new physics. I will present new bounds on dark sector models, incorporating finite-temperature effects on the production and trapping of a dark photon, nuclear effects for the coupling to axions, and a more realistic model of the high-mixing parameter space than in previous work. This has dramatic effects for the landscape of such models.

### HEP Lunch seminar info:

Please use the doodle poll to sign-up for lunch at

<https://doodle.com/poll/kamsxbze4zwe6adt>

Chicken Sandwich \$8, Sub Sandwich \$9, Salad \$7, Slice of Pizza- \$5 (all include coffee). Coffee 25¢. Pop or Water 75¢.

The HEP Lunch Seminar Schedule can be viewed at:

<https://indico.fnal.gov/event/20054/>