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## DAMIC results : Low mass WIMP( $\sim < 5\text{GeV}$ ) direct detection with scientific CCDs

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A large body of astronomical evidence across all length scales, from galaxy rotation curves, to lensing studies and spectacular observations of galaxy cluster collisions, to cosmic microwave background measurements, all points to the existence CDM(Cold Dark Matter) particles. WIMP(Weakly Interacting Massive Particles) represent a class of dark matter particles that froze out of thermal equilibrium in the early universe with a relic density that matches observation, meanwhile, it could “naturally” solve the gauge hierarchy problem. This is the so called WIMP miracle.

Many theoretical models beyond the Standard Model provide natural candidates for WIMPs, but the range of WIMP mass is huge : from 1GeV to 100TeV.

DAMIC dedicates to hunt low mass( $\sim < 5\text{GeV}$ ) WIMP thanks to its extremely low noise,  $2e^{-}$ (RMS).

In this presentation, I will make a brief review on our work at first, but my main emphasis would be such two aspects :

- (1), quenching factor measurement for silicon with (sub)keV recoil energy using mono-energy(2MeV) neutron source. Currently, the measured lowest recoil energy for silicon is  $\sim 4\text{keV}$ .
- (2), the limit of cross-section vs WIMP mass using different EFT operators and a few WIMP velocity model(s). Right now, DAMIC reached the lowest mass limit by a typical SI(Spin Independent) analysis, it's meaningful to show if EFT model has been applied.

DAMIC is an international collaboration. DAMIC detector has taking data since 2013 in Snolab, Canada.

### Oral or Poster Presentation

Oral

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