



In search of light dark matter

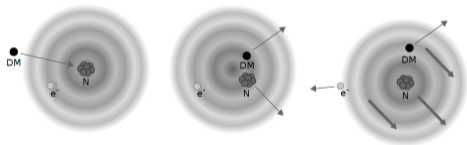
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Interactions



Source: Quantum universe

Migdal effect

- $\mathcal{O}(10) - \mathcal{O}(100)$ MeV
 - Inelastic scattering
- 1) DM boosts the nucleus
 - 2) Momentum transfer to the electrons

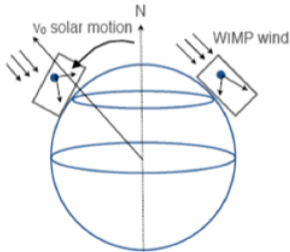
Electron scattering

- $\mathcal{O}(1)$ MeV
- DM scatters off the electrons

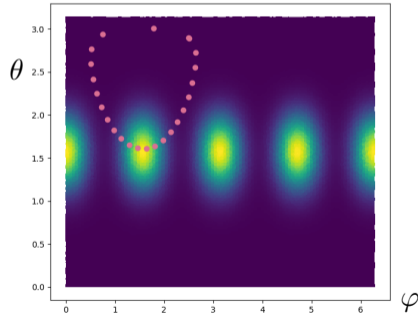


DM wind direction

- Earth rotates around itself \Rightarrow direction of the DM wind changes
- Energy loss function (ELF) can have directional dependency: scattering from one direction can be more probable than from another

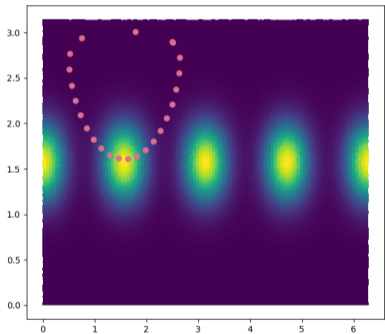


Source: 1310.8327

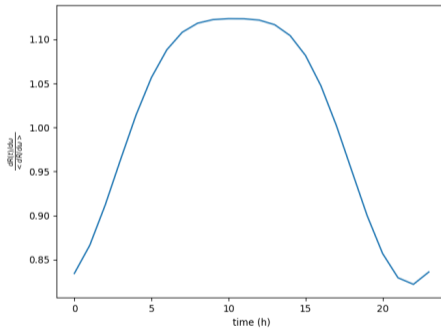




Daily modulation



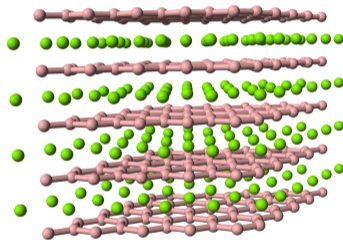
expect
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Results

- ELF of Si is isotropic
- GaAs has a small dependency
- Next we look at layered materials, f.ex. MgB_2



Source: 3DChem.com