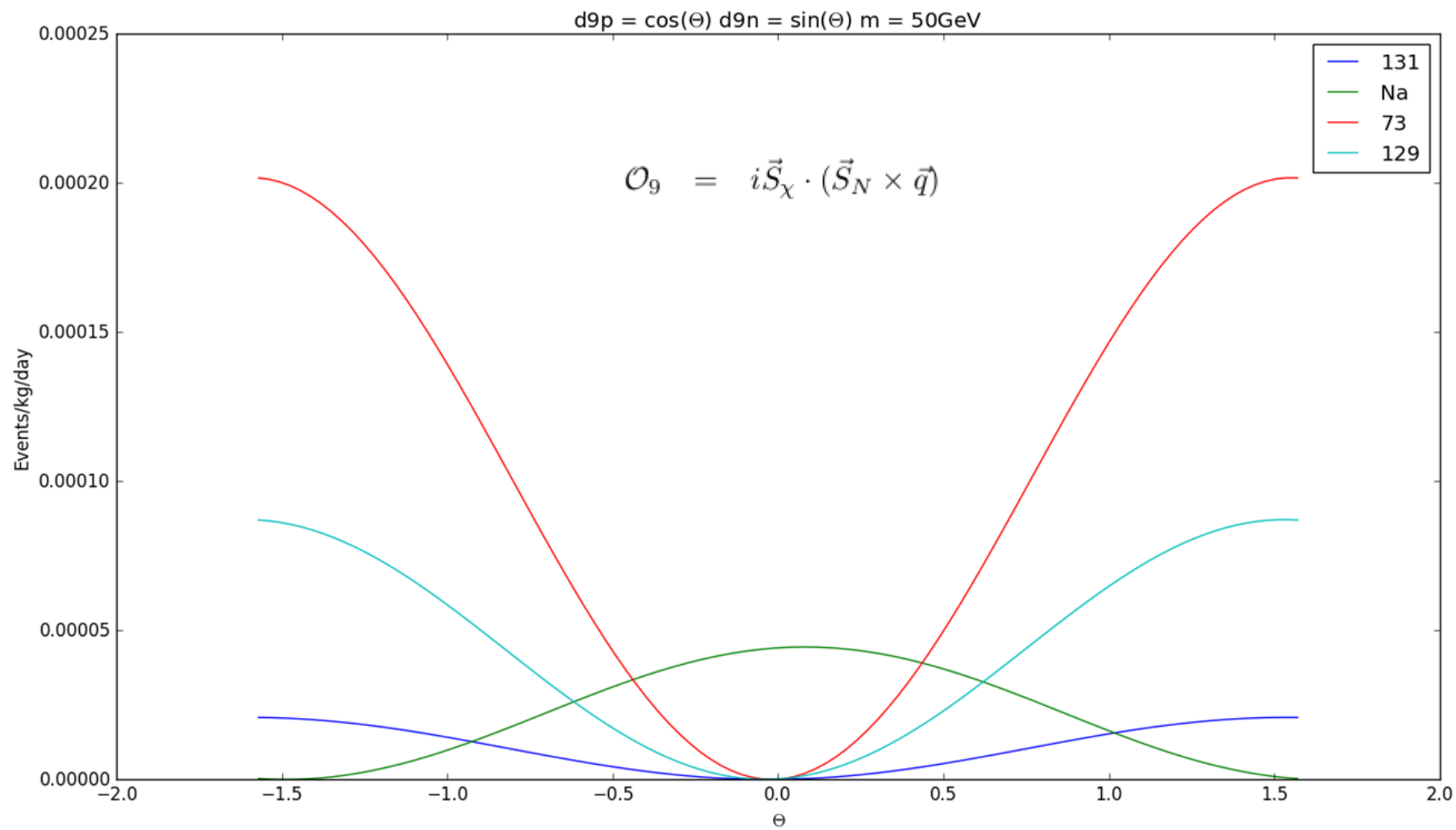# EFT Update 8/22/19

John P.

Currently working on:

- Improving the python code I use to generate plots

- Making "heat map" plots for different target materials and individual isotopes. (isospin and operator interferences handled separately)

- Making actual heat maps for different target materials and isotopes (both op and isospin interferences)

- Timing Mathematica code to compare with Changfeng's fortran version.

Plans for near future

- Talk with Baha and his post doc.

- Talk to Changfeng and Calvin about the Argon density matrices.

- Maybe look into event rate spectra for different WIMP velocity distributions.

d9p = cos(Θ) d9n = sin(Θ) m = 50GeV

Legend: 131, Na, 73, 129

$$\mathcal{O}_9 \;\; = \;\; i\vec{S}_\chi \cdot (\vec{S}_N \times \vec{q})$$

Events/kg/day (vertical axis)

Θ (horizontal axis)

$$\mathcal{O}_8 \quad = \quad \vec{S}_\chi \cdot \vec{v}^\perp$$

d8p = cos(Θ) d8n = sin(Θ) m = 50GeV

d4p = cos(Θ) d4n = sin(Θ) m = 50GeV

$$\mathcal{O}_4 \quad = \quad \vec{S}_\chi \cdot \vec{S}_N$$

Legend: 131, Na, 73, 129

Events/kg/day vs Θ