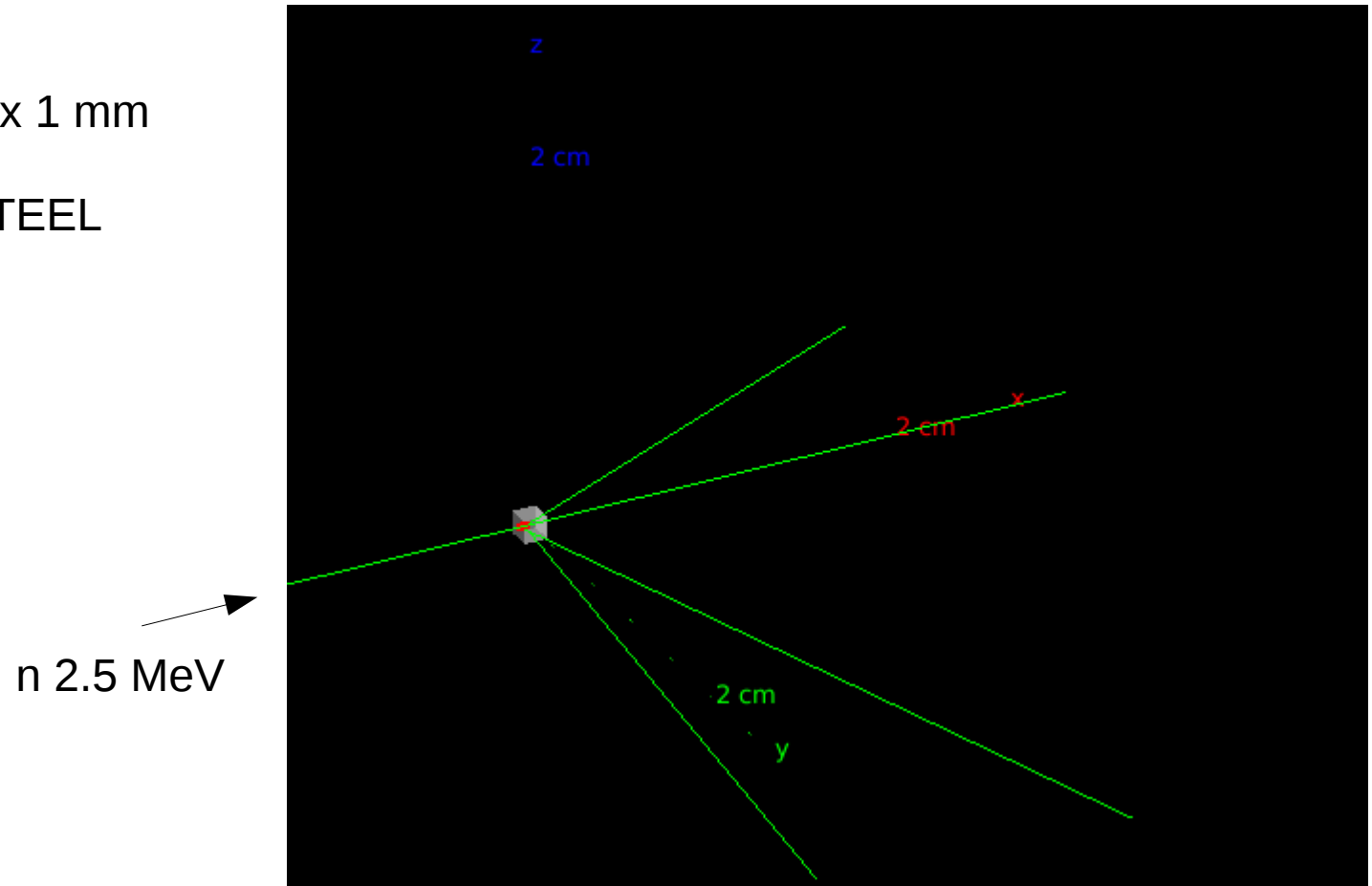# RED Simulations Status Report

Michael Kuss

- TPC step file from Biagio
- Installed freecad: can read step files, can write PLY files
- Read into G4: CADMesh library PLY → TessellatedMesh
- Use g4ds?
    - Not easy to separate codes: e.g. DSDetectorRED.cc → DSDetectorConstruction.cc
    - Different tasks: g4ds for DM, RED TPC for n->Ar recoil
    + use the vast infrastructure, e.g. SiPM, PMT
- Standalone code: currently cadmesh_example (there might be alternatives)
    + much simpler to understand
    + Separate from g4ds
    + Separate repo (CNAF?)
    - Needs 2 external libs (assimp, tetgen)
    - need to start from scratch
    - need to compile against G4 with OpenGL (for visualization)
- What's in?
    TPC
    Field shaping rings

Test Sensitive Detector (SD)
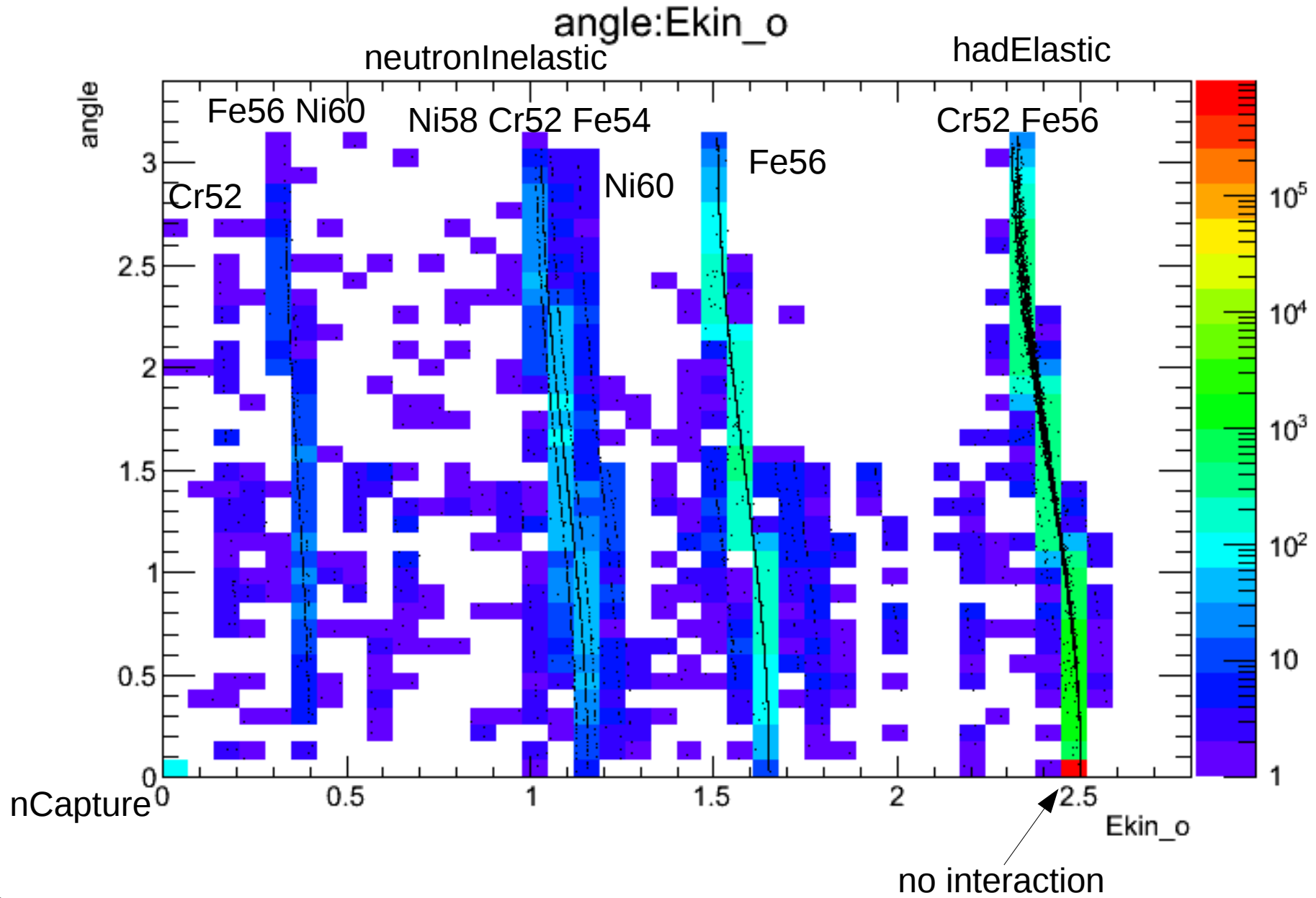
cube 1 mm x 1 mm x 1 mm

G4_STAINLESS_STEEL
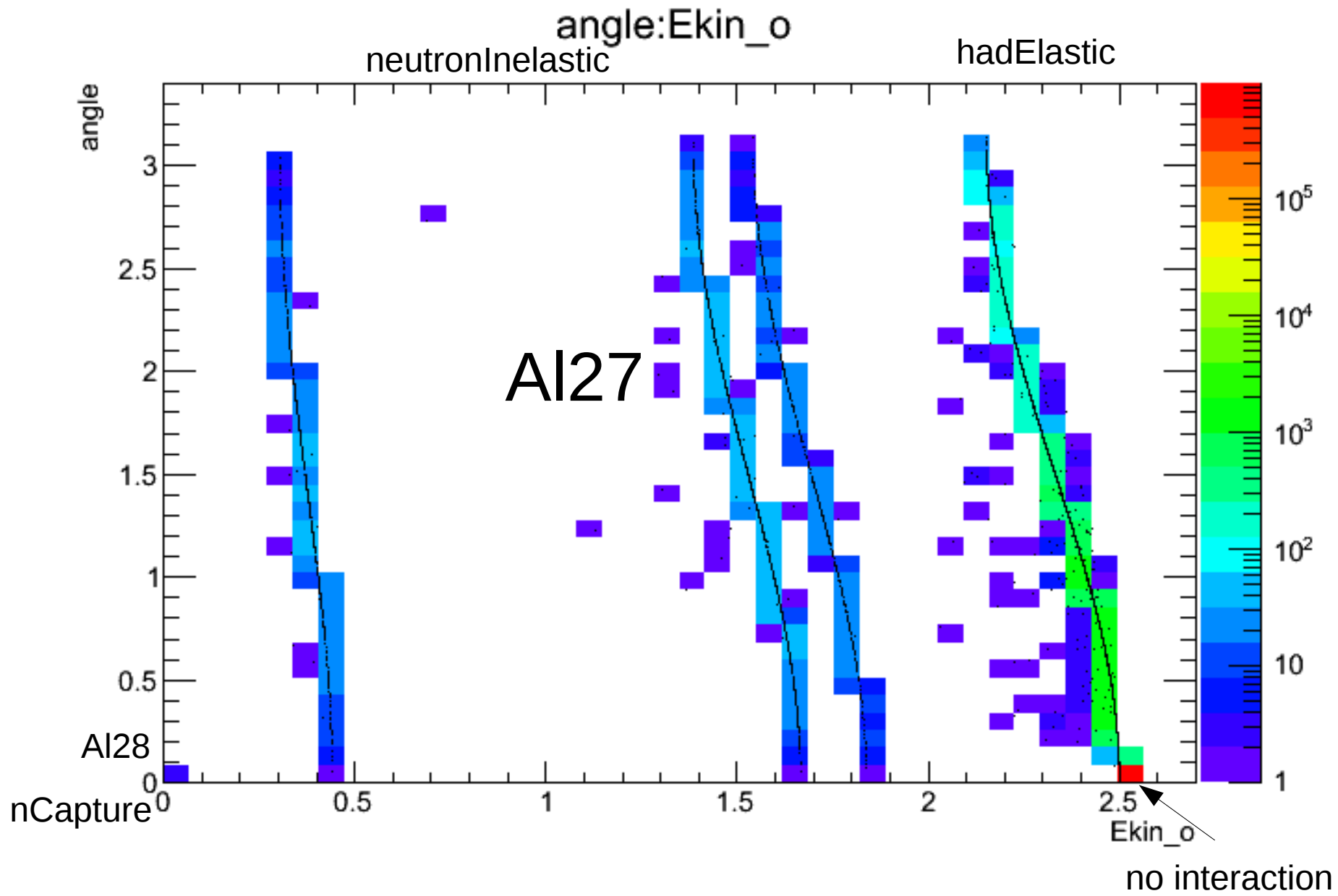G4_Al

n 2.5 MeV

G4_STAINLESS_STEEL

angle:Ekin_o

4

G4_Al

angle:Ekin_o

neutronInelastic   hadElastic

Al27

Al28

nCapture

Ekin_o

no interaction

5

angle {Ekin_o>2.15}

97.0%
97.6%

steel
aluminum

2.2%
2.1%

angle

6

7   Ekin of recoiling hadron   # of recoiling hadrons