Towards automated testing of electron multiple scattering

and

Requirements for further infrastructure development

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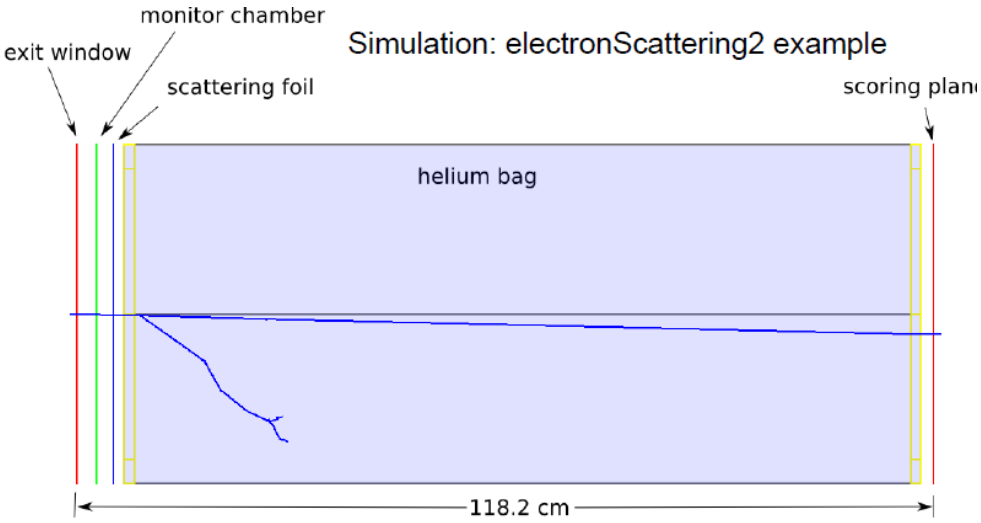
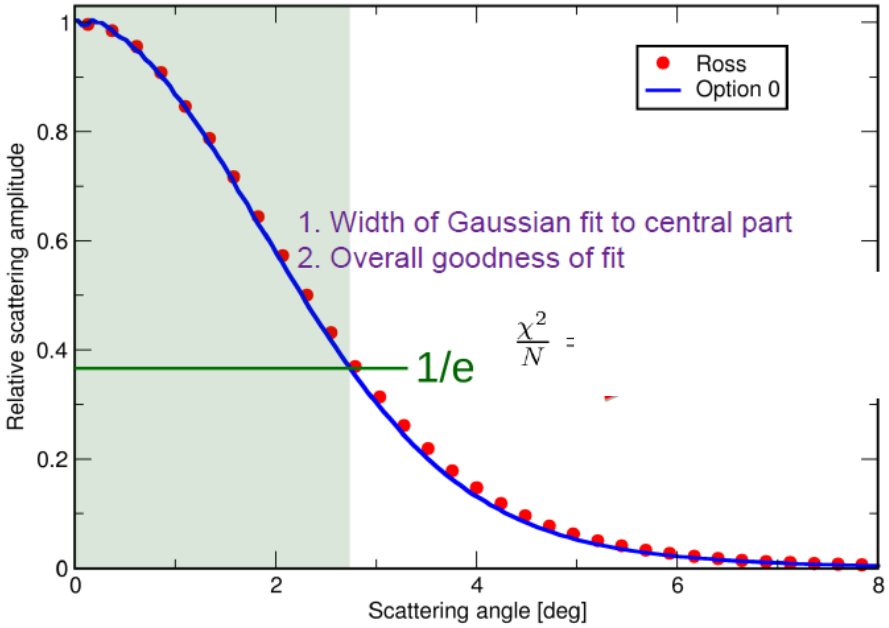
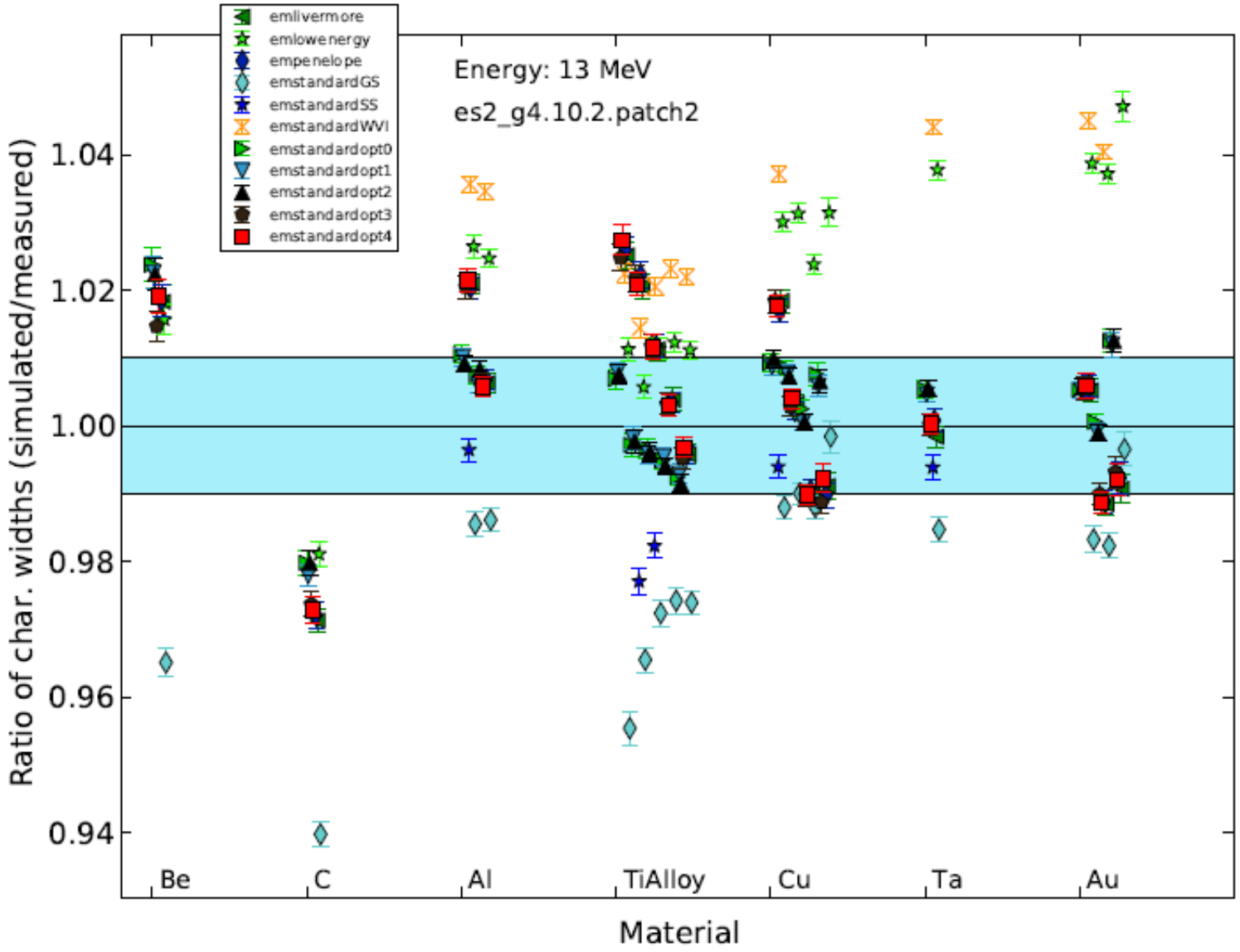
The experiment





Width of central peak



Requirements

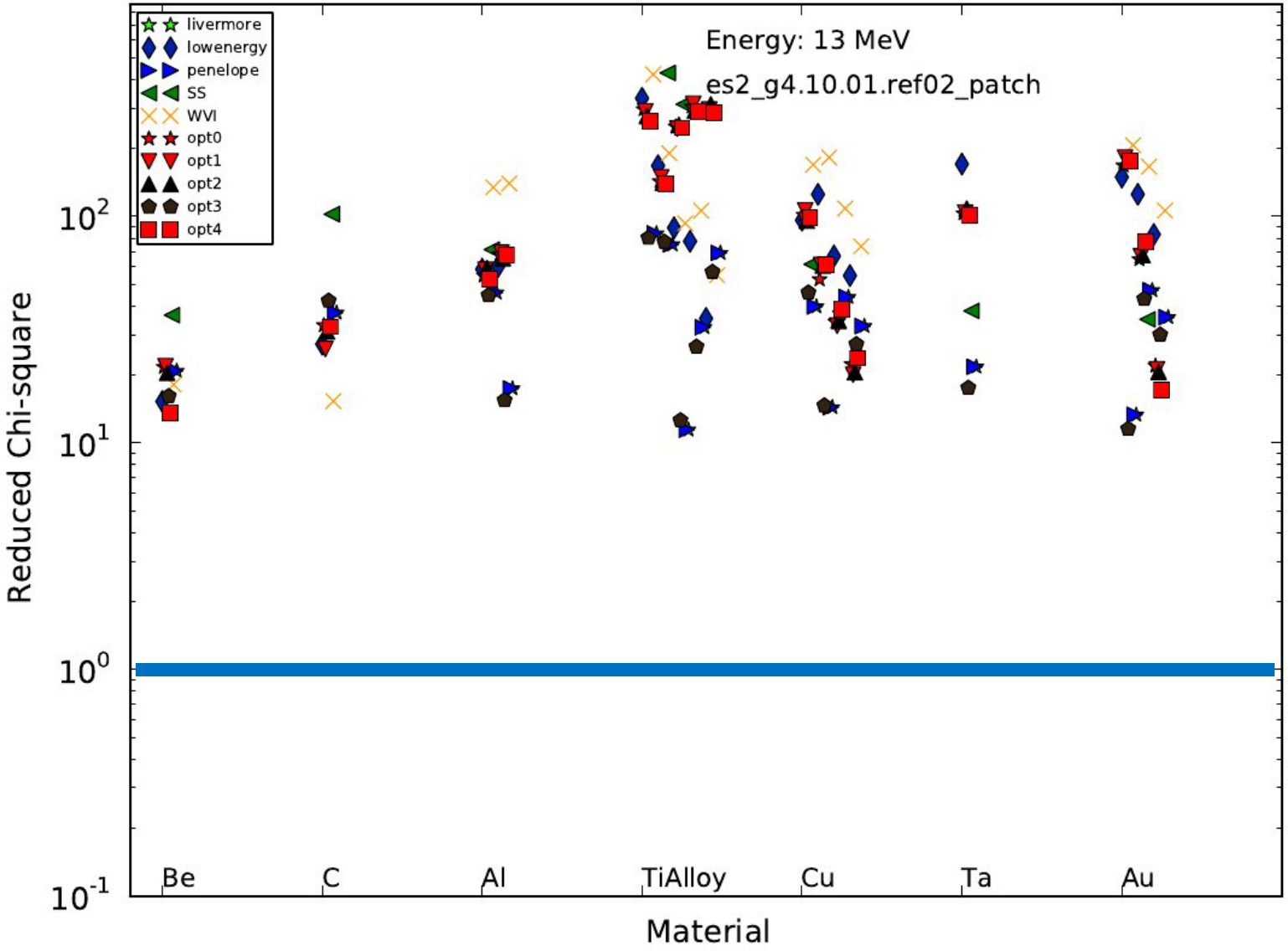
1: Computing horsepower

(data are both *few* and *many*)

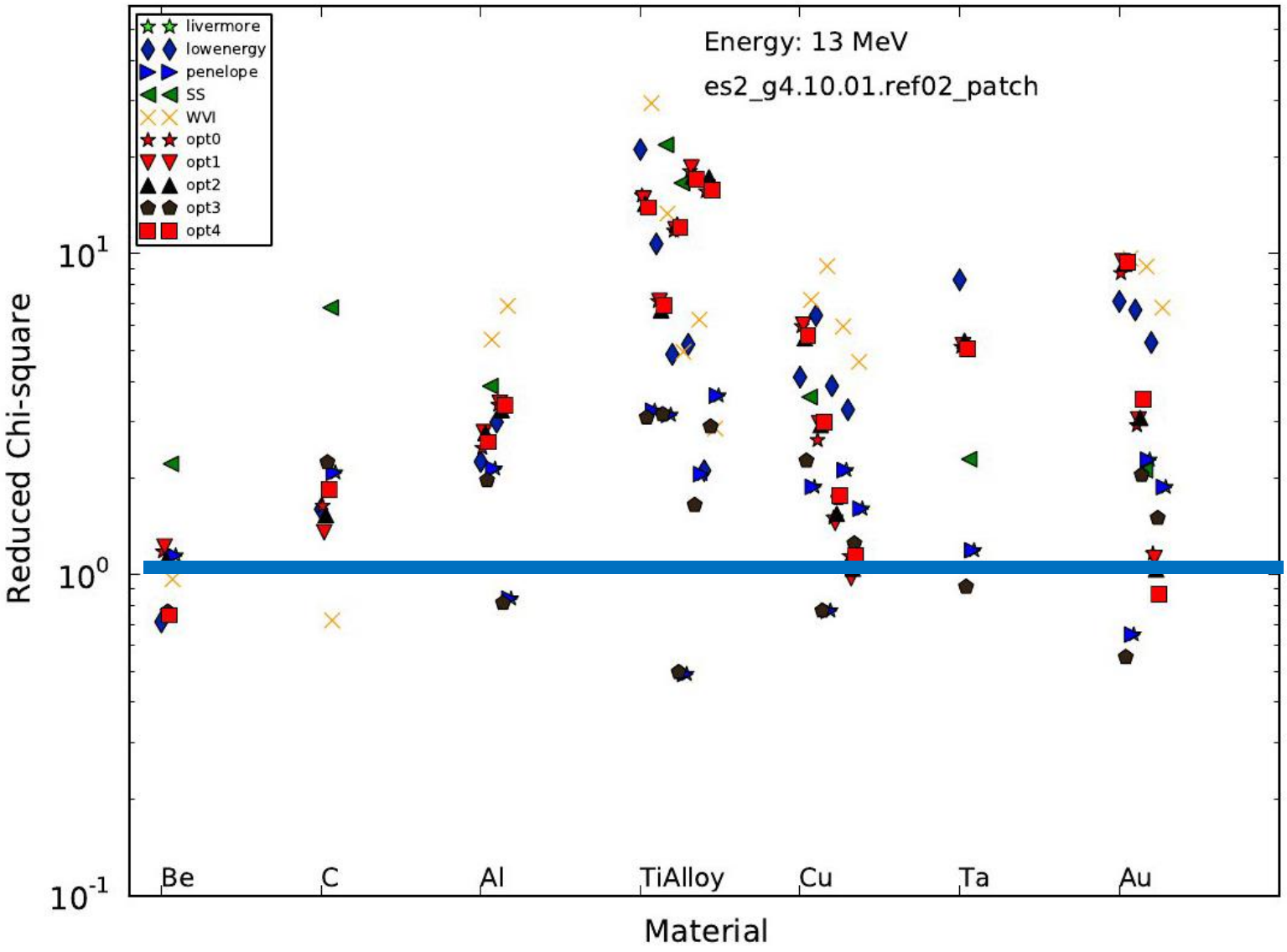
Tails: Chi-squared

- We first need to determine the:
  - Measurement uncertainty in each data point
  - Normalization of measured data

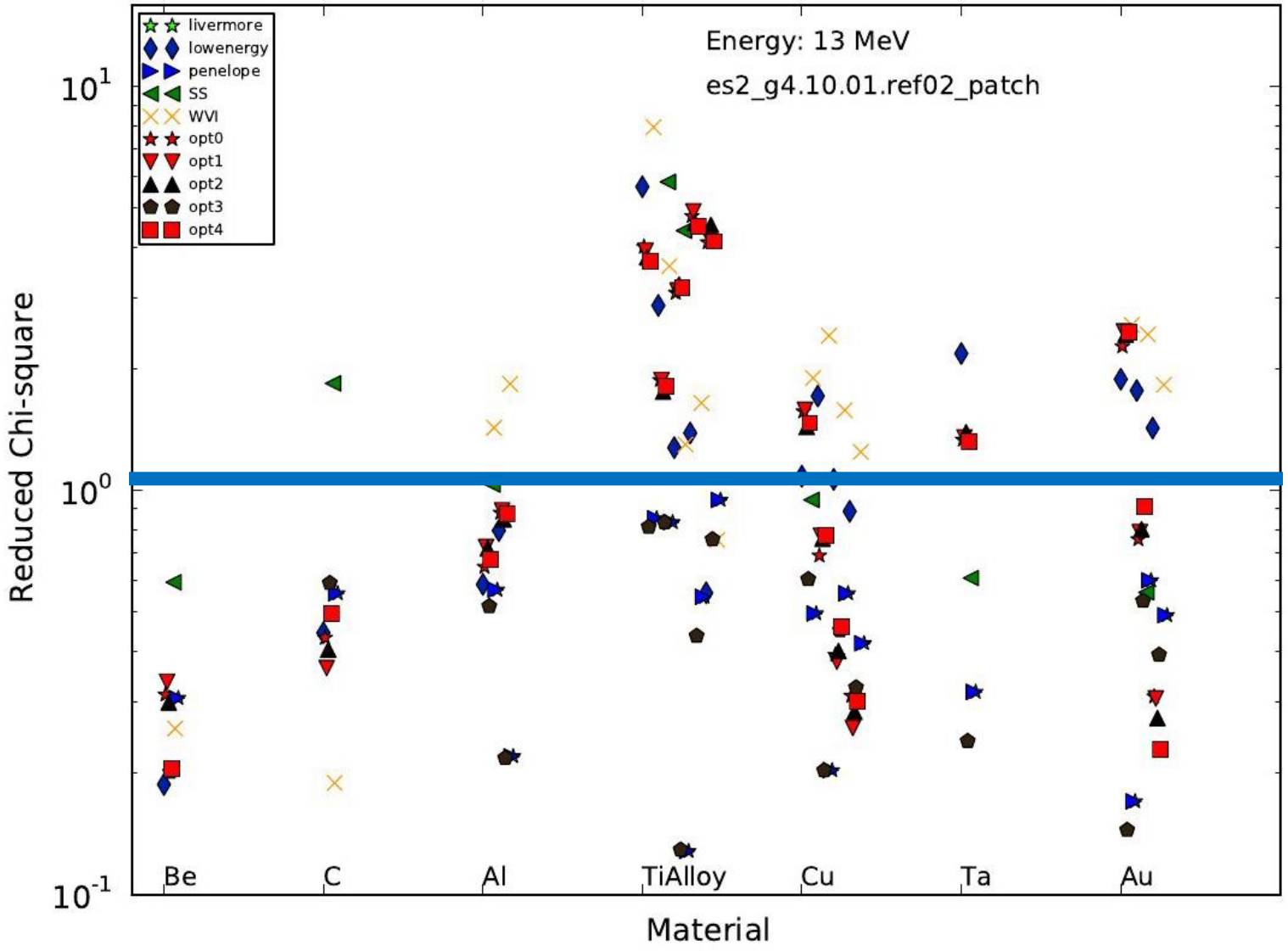
Measurement uncertainty



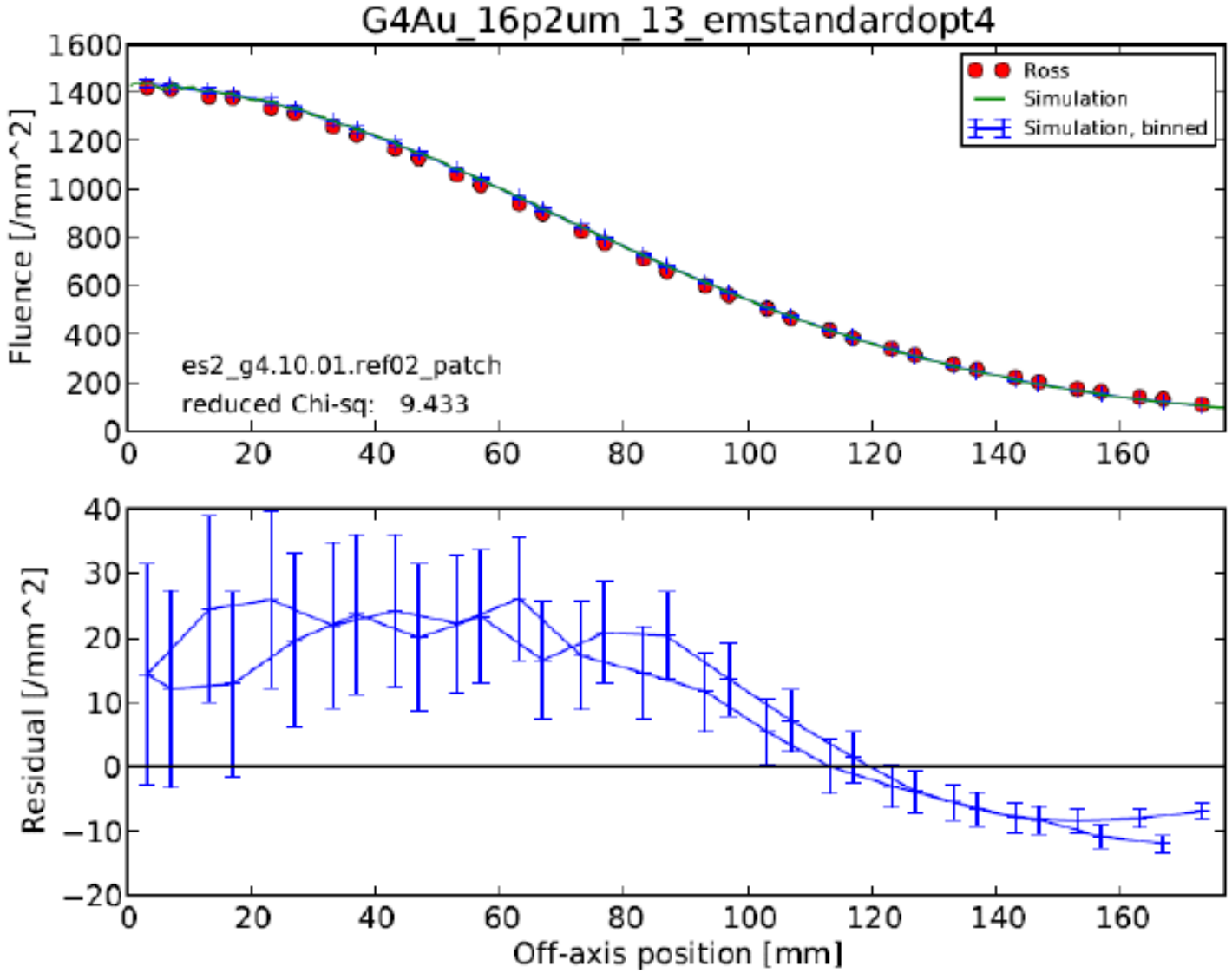
Measurement uncertainty



Measurement uncertainty



Normalization of data

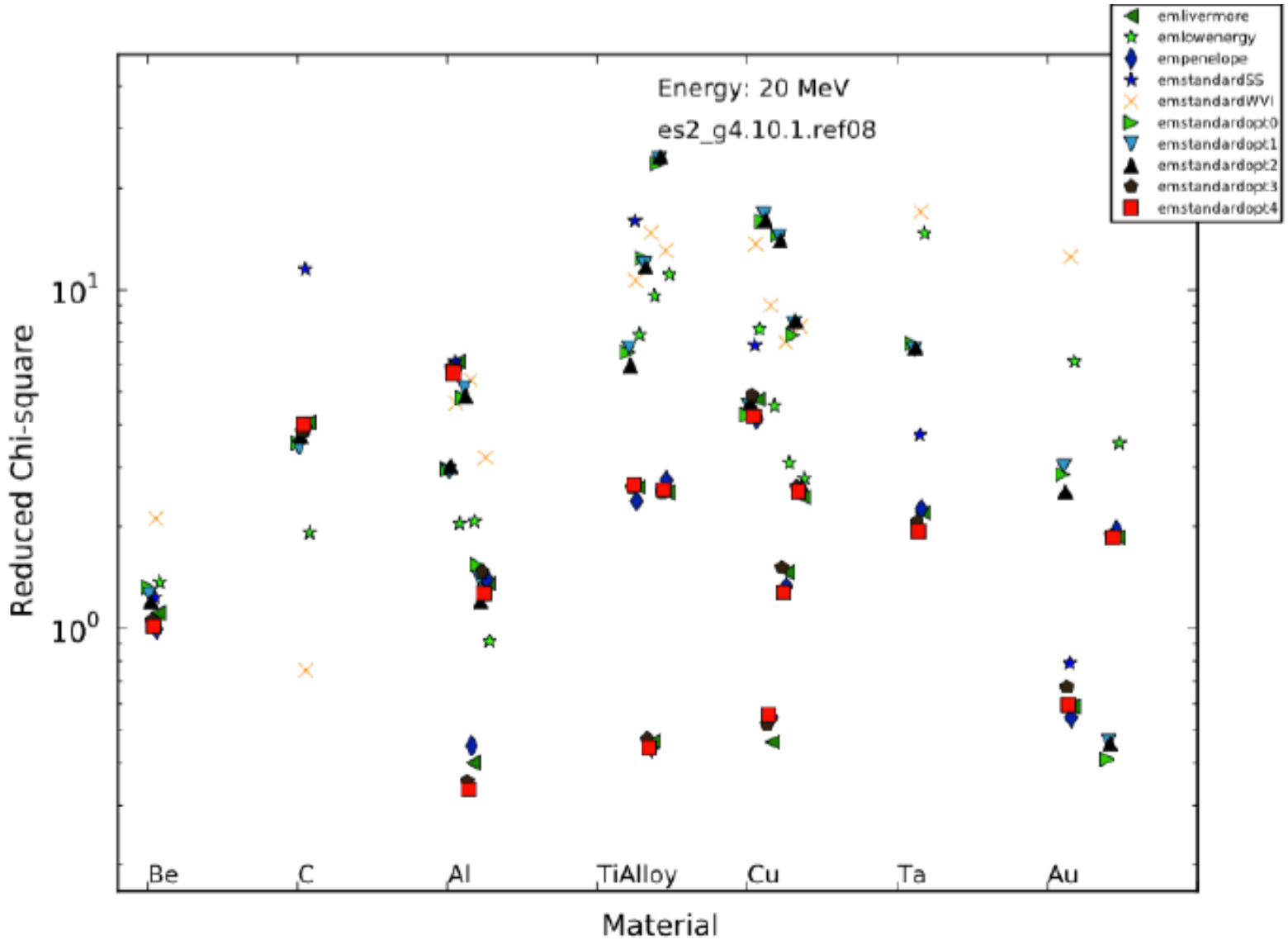


Requirements

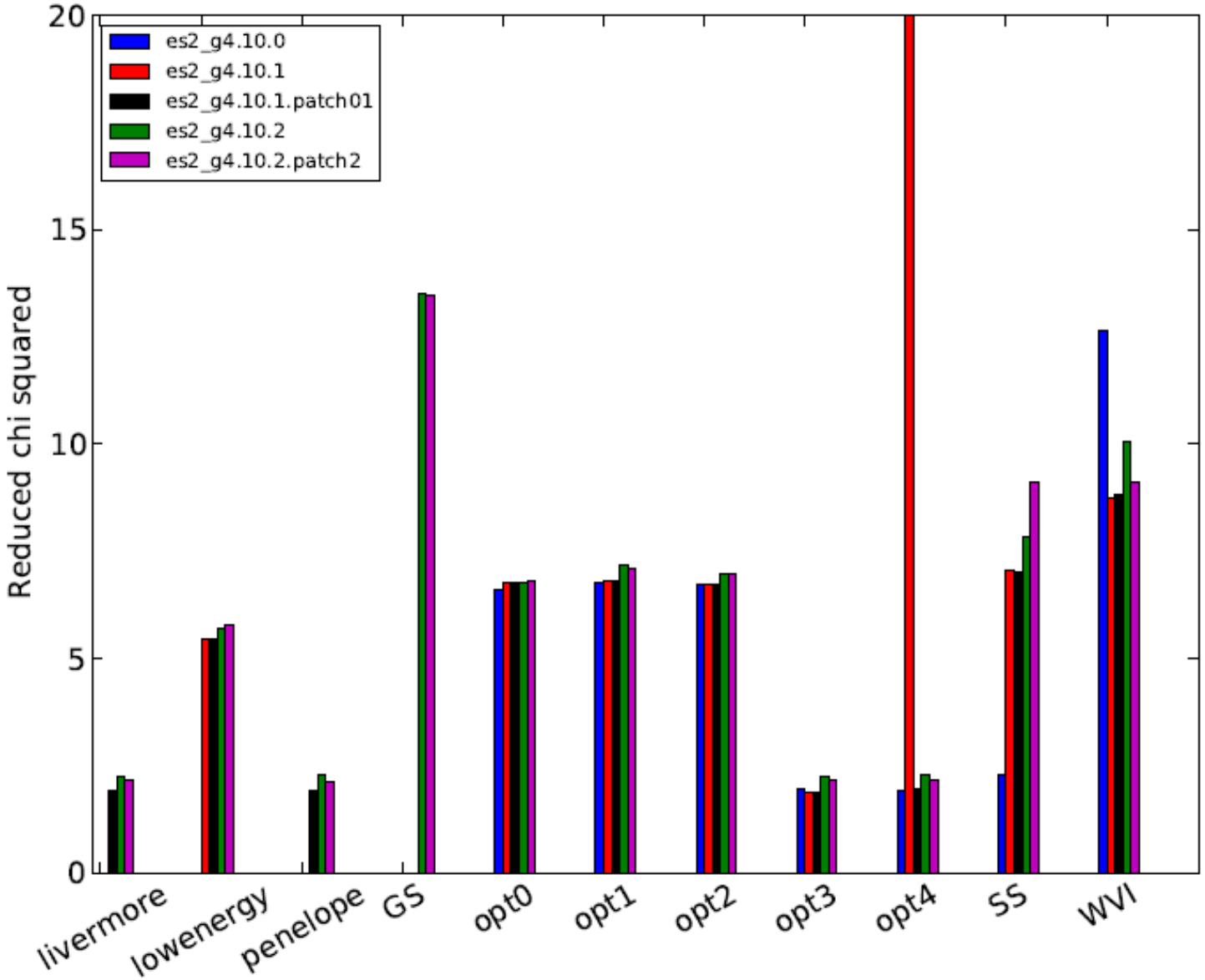
1: Computing horsepower

2: Ability to do analysis by writing code

Too much data…



Better: a dashboard



Requirements

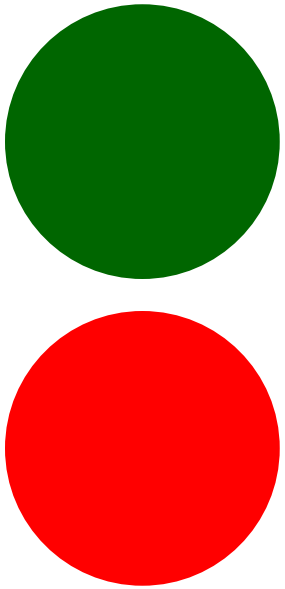
1: Computing horsepower

2: Ability to do analysis by writing code

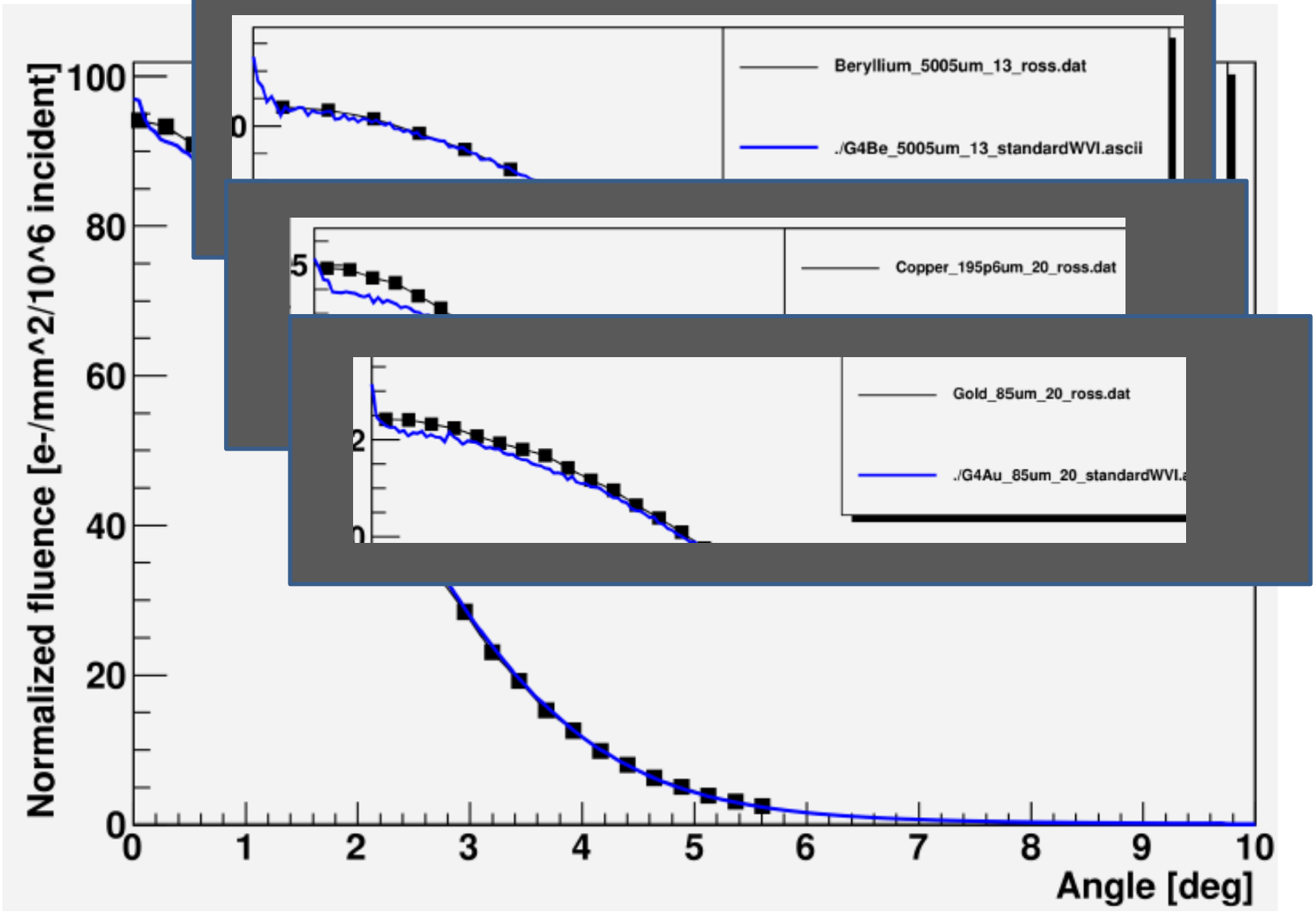
3: A dashboard

Testing goals:

1. developers now when fixes needed
2. users have confidence code works



Look at the raw data



Requirements

1: Computing horsepower

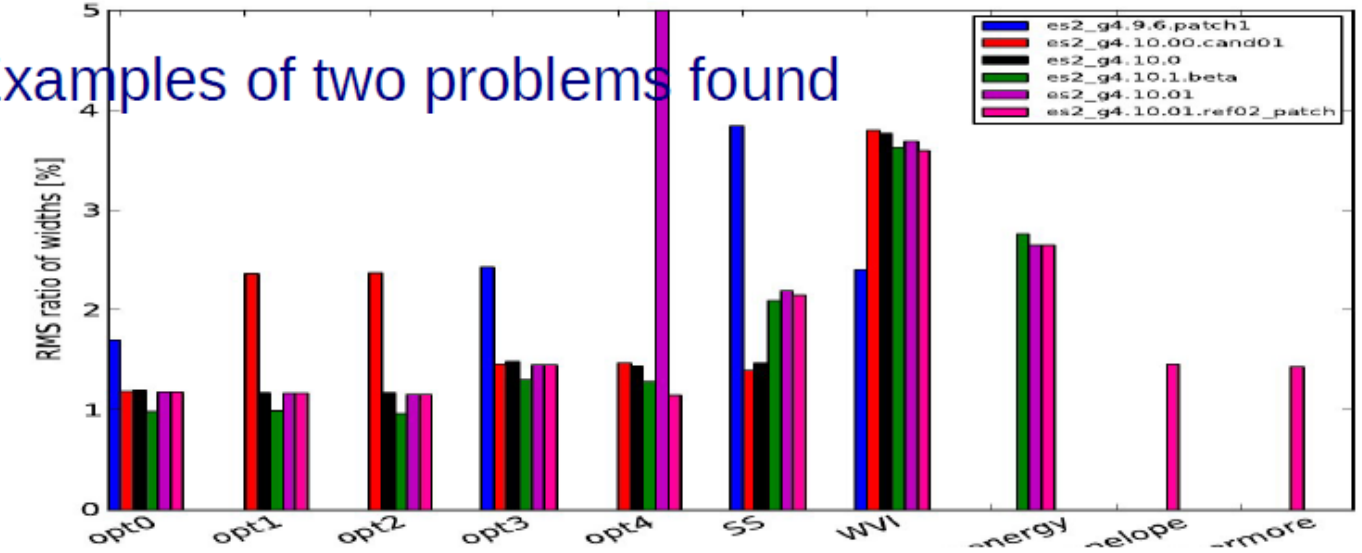
2: Ability to do analysis by writing code

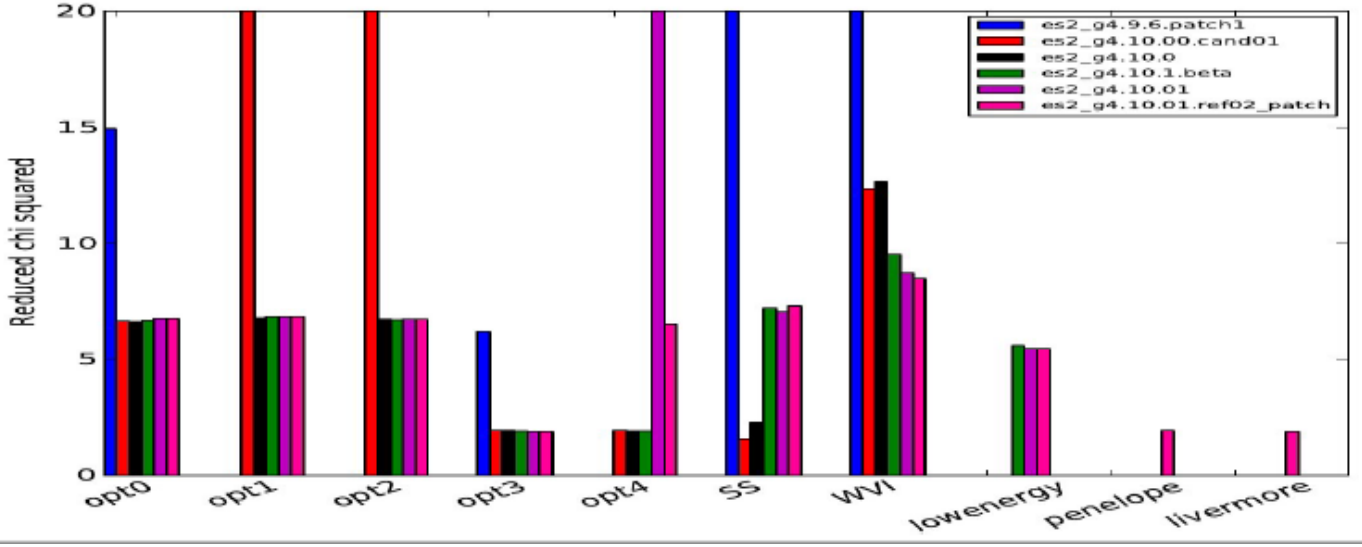
3: A dashboard

4: And also the raw data available

Two metrics, two problems

Examples of two problems found





Requirements

1: Computing horsepower

2: Ability to do analysis by writing code

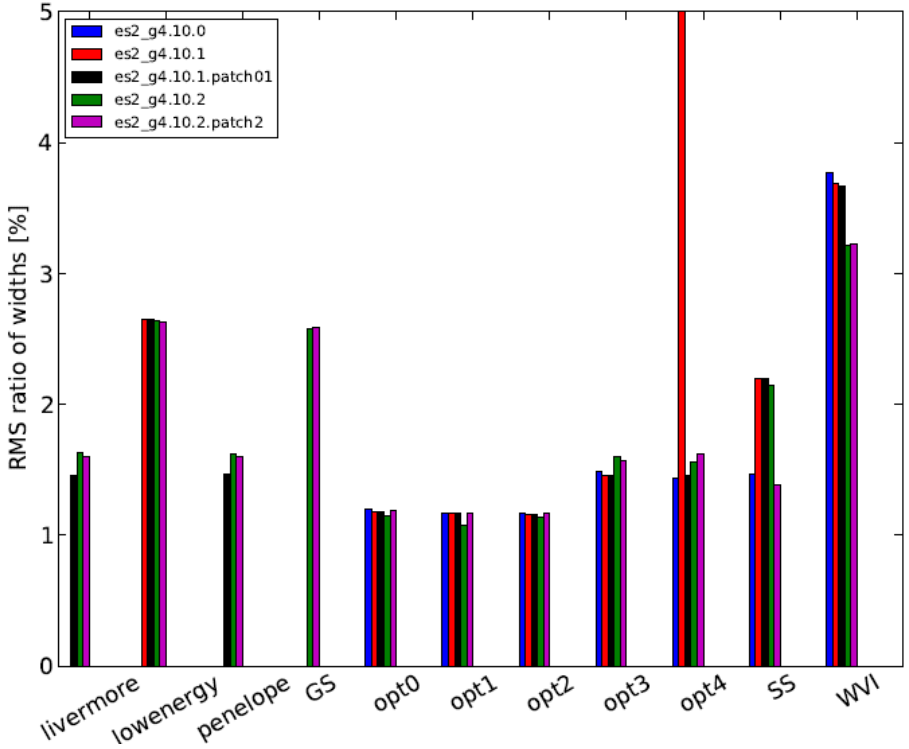
3: A dashboard

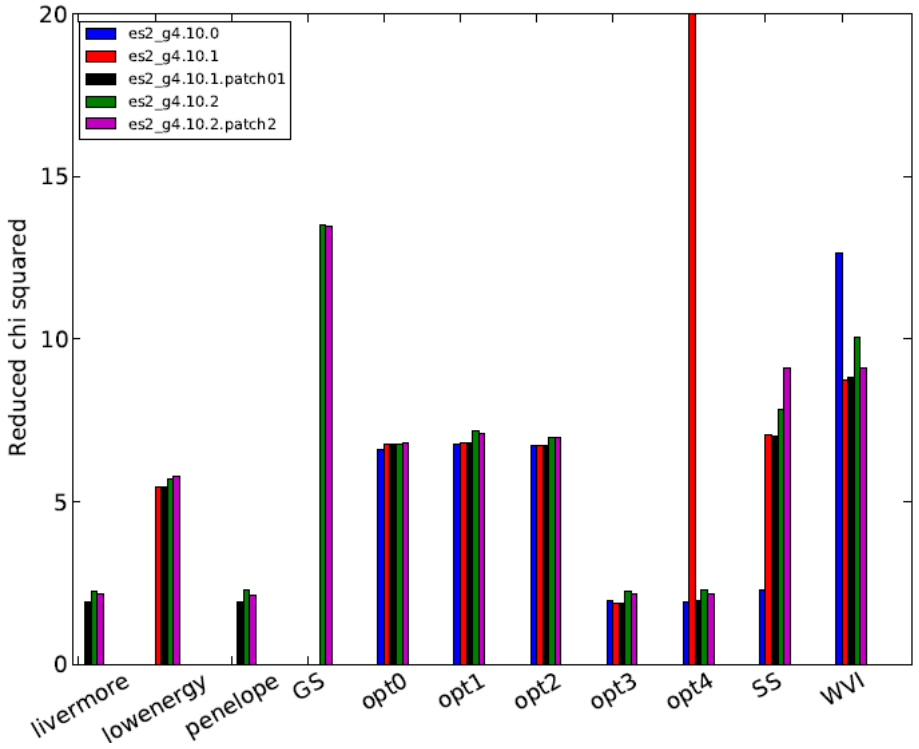
4: And also the raw data available

5: Time to do the tests

i.e. after code freeze, before release

Current status





Requirements

1: Computing horsepower

2: Ability to do analysis by writing code

3: A dashboard

4: And also the raw data available

5: Time to do the tests

6: A home for the data

There are at least two data repositories… let's please choose one

Requirements

1: Computing horsepower

2: Ability to do analysis by writing code

3: A dashboard

4: And also the raw data available

5: Time to do the tests

6: A home for the data

7: Automate the entire process

e.g. data repositories need an API

Requirements

1: Computing horsepower

2: Ability to do analysis by writing code

3: A dashboard *(pass / fail)*

4: And also the raw data available

5: Time to do the tests *(code freeze)*

6: A home for the data *(singular)*

7: Automate the entire process