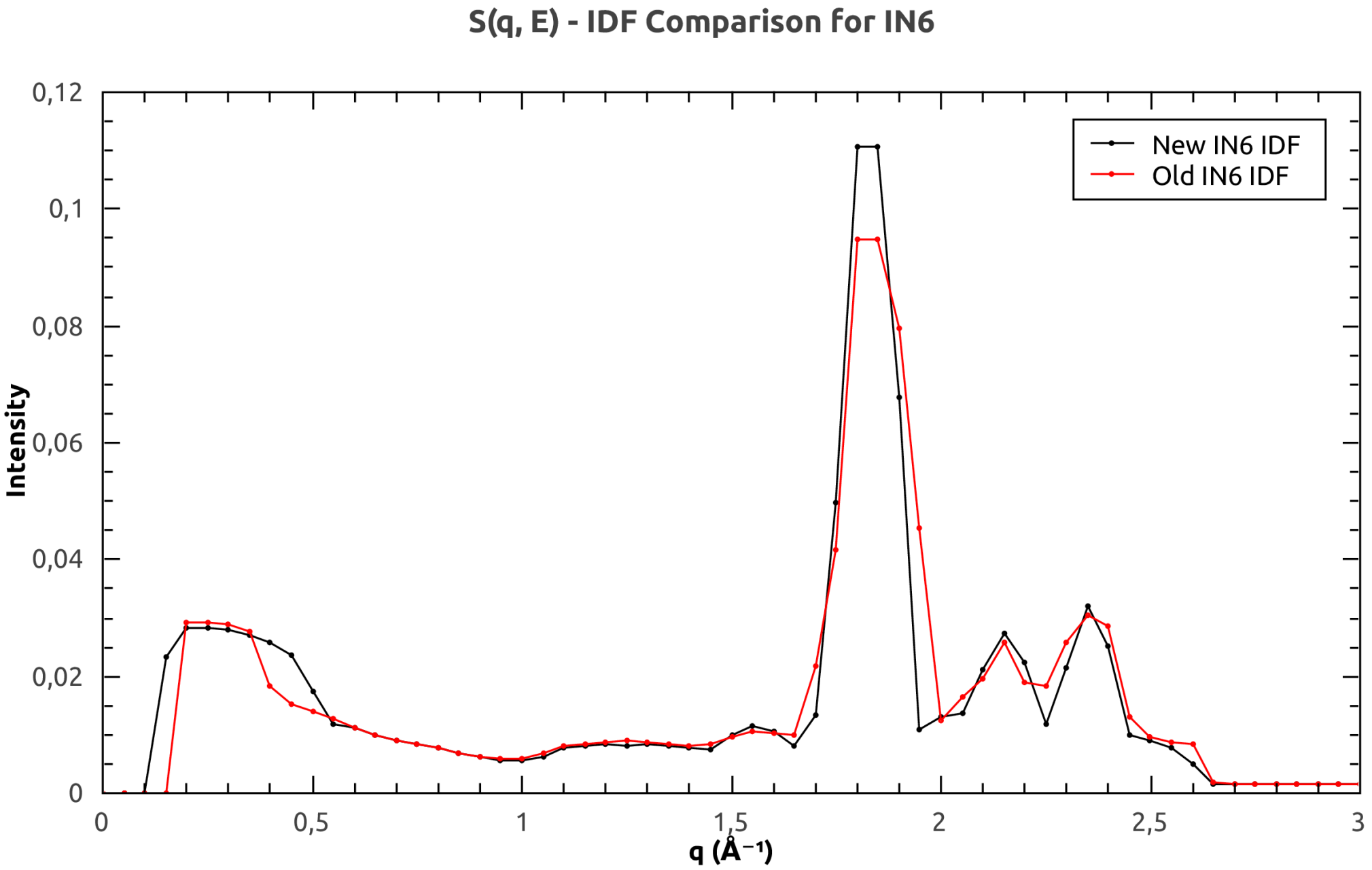
IN6 Instrument Definition Updates

Sprint Review Meeting 05/07/16

Correct IN6 IDF Comparison



IN6 Detector Efficency

- From design document/Lamp:

$$\eta = 0.94(1 - e^{(-0.363\lambda)}) \text{ for } \lambda < 4\mathring{A}$$

$$\eta = e^{-0.063\lambda}(1 - e^{(-0.363\lambda)}) \text{ for } \lambda > 4\mathring{A}$$

- For Mantid:

$$\eta = 0.94(1 - e^{(-3.283/E^{1/2})}) \text{ for } \lambda < 4\mathring{A}$$

$$\eta = e^{-0.5698/E^{1/2}}(1 - e^{(-3.283/E^{1/2})}) \text{ for } \lambda > 4\mathring{A}$$

- Add back part for λ < 4 Å

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e < 5.1127625 ? 0.94*(1.0-exp(-3.283/sqrt(e))) :
exp(-0.05698/sqrt(e))*(1.0-exp(-3.283/sqrt(e)))
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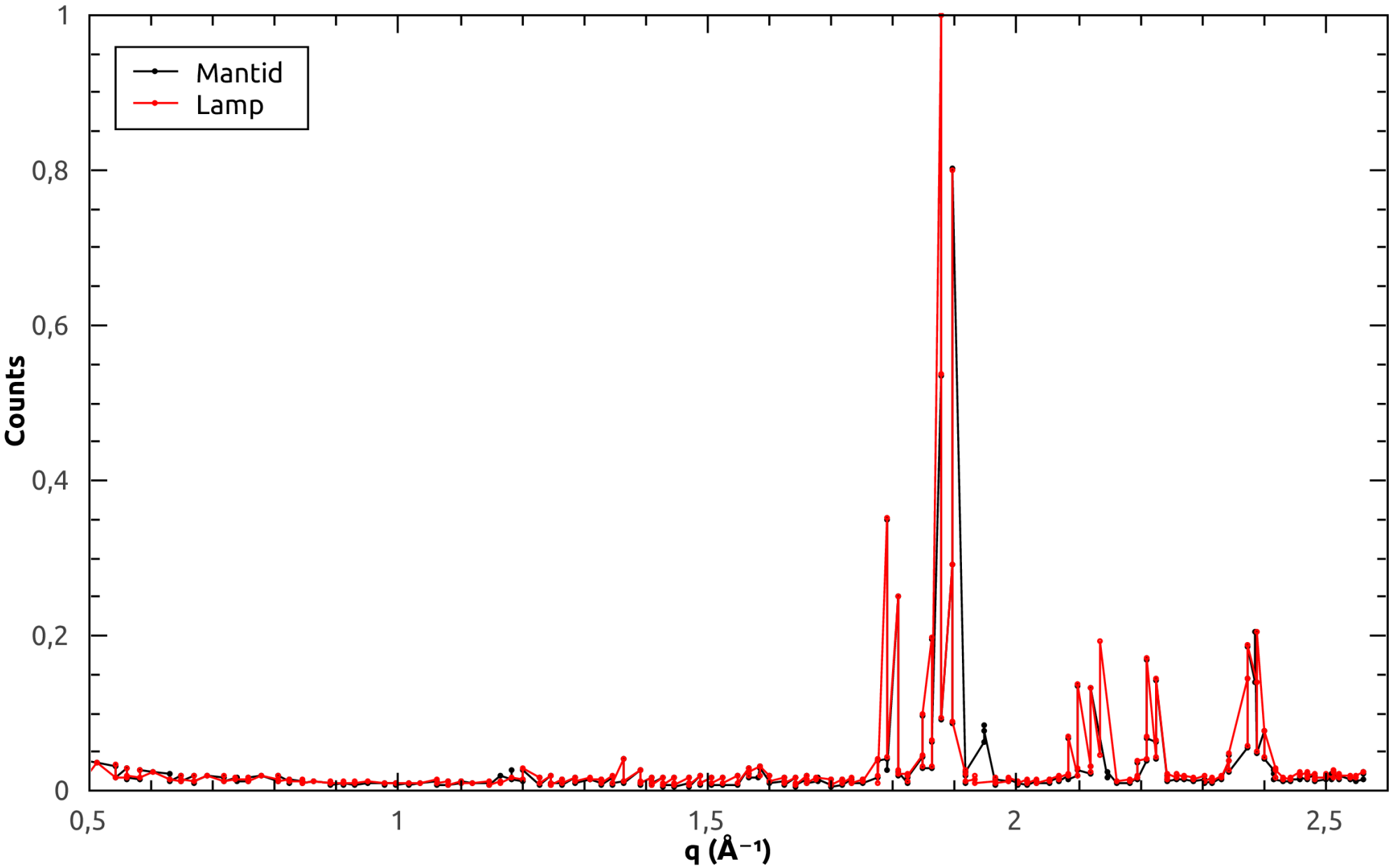
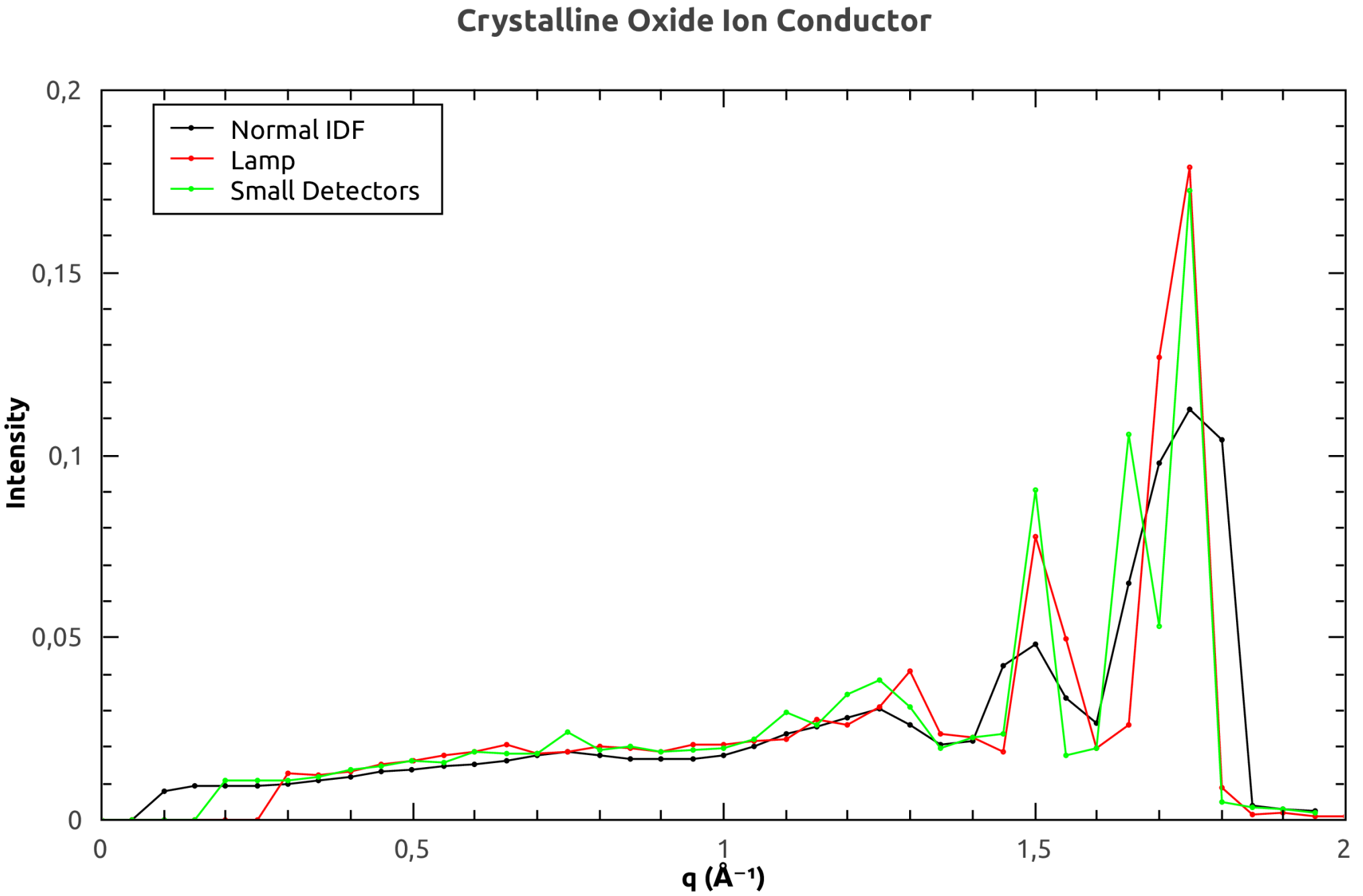
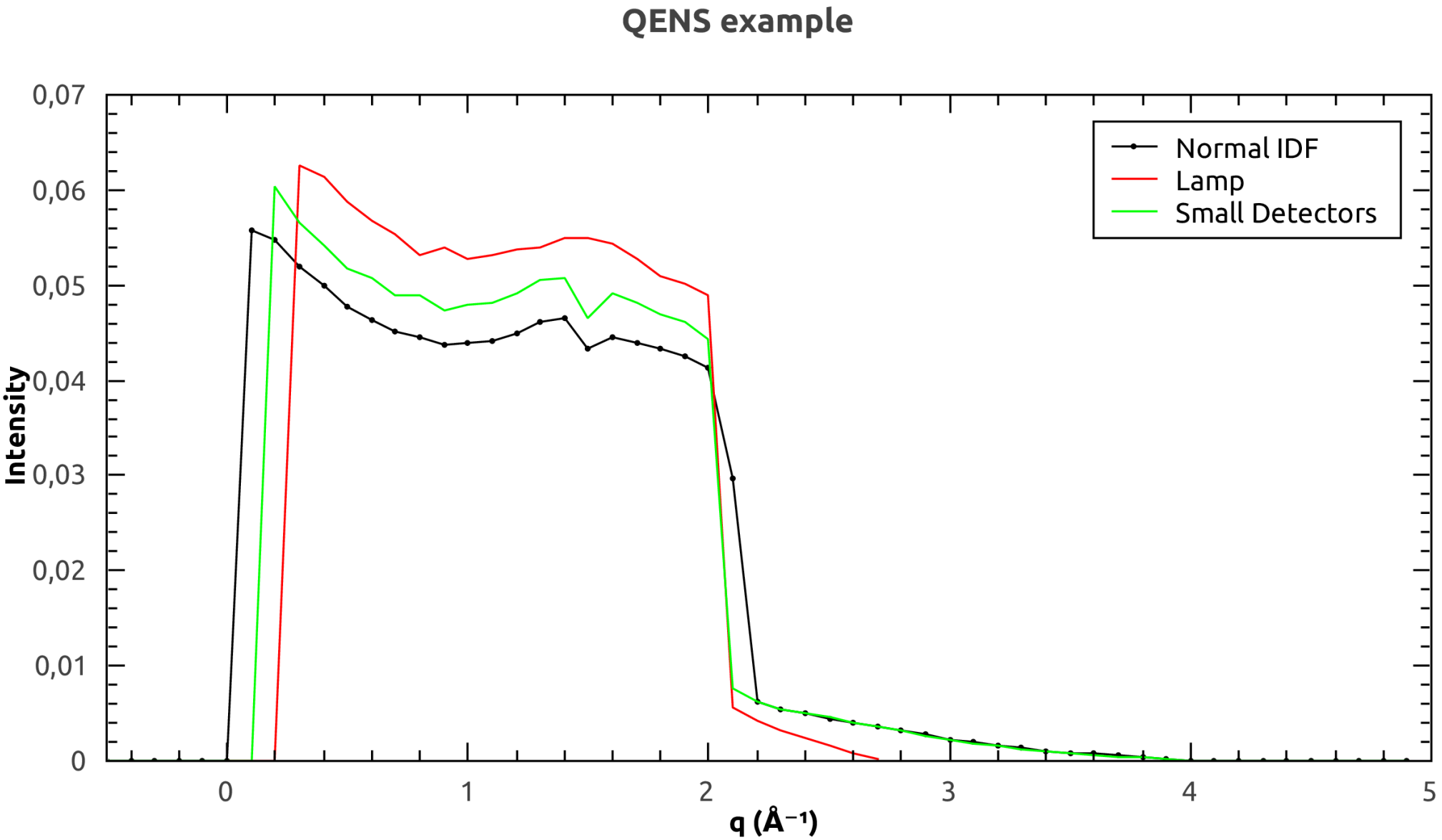

IN6 with Detector Efficiency Correction S(φ, E)
Mantid
Lamp
Counts
q (Å⁻¹)
0
0,2
0,4
0,6
0,8
1
0,5
1
1,5
2
2,5


Crystalline Oxide Ion Conductor
Normal IDF
Lamp
Small Detectors
Intensity
0,2
0,15
0,1
0,05
0
0
0,5
1
1,5
2
q (Å⁻¹)


QENS example
Intensity
q (Å⁻¹)
0,07
0,06
0,05
0,04
0,03
0,02
0,01
0
0
1
2
3
4
5
Normal IDF
Lamp
Small Detectors

Work to Do...

- Check IN6 Instrument Scientists agree with current IDF and detector efficencies
- For ToF decide on approach for data reduction workflow...