JM 10/03/2022 **Ion Acoustic Dose Mapping Meeting**

**Present:** Jeff Bamber, Ben Cox, HT Lau, Anthea MacIntosh-LaRocque, John Matheson

**Discussion**

Anthea showed progress with the simulations, moving the detector plane from beyond the Bragg peak to a lateral position. Some features appeared in the plots, which Ben commented on are artefacts due to finite detector coverage and the assumption implicit in the Fourier reconstruction that there is periodicity in the data. Eventually the aim is to try a hemispherical detector. Ben commented on convergence testing that using a tighter mesh with a point source will eventually lead to convergence failure. The source size needs to be matched to the mesh size.

HT described the pipeline of the simulation; individual scripts have been combined into a single bash script which the user can edit to select the required steps. For more details see HT’s very clear slides.

HT will write a set of detailed instructions. John commented that the position of the scintillating planes along the proton track was something one might want to tune in a way that is easy to change.

A discussion followed on the progress of the Proposal, we need to make the costings correct and then look how to reduce the programme to fit into the total £2M ITRF envelope for the first 2 years. Ben had sent round staff costings and Jeff intends to talk to Colin. A possible way to reduce costings might be to have postdocs shared between institutions. The Verasonics Vantage is available with up to 256 channels at £102K. More channels by multiplexing channels to transducers (time resolution penalty) or by synchronising multiple Vantage units (requires extra hardware). Some of the cost might be moved from Y2 to Y3 but we need to be able to make measurements in Y2. A possibility would be to look at LeCoeur electronics, where a simpler system for the initial beam test demo might be found. The deadline to have all the costings etc. for the proposal is 10th April.

<https://verasonics.com/vantage-systems/>

<http://www.lecoeur-electronique.net/>

<https://www.imasonic.com/en/home/> (transducers)

**Actions**

John: talk to the ISIS and CLF people who are building scintillation detectors – so far swapped e-mails but aiming for a meeting

Jeff – talk to Colin

Emma, Ben, Jeff, John – refining the costings.

Emma, Ben, Jeff, John – Decide who will make the monthly report.

HT – write some detailed instructions for how to run the simulations.

John – talk to Ken and Dave Newbold re RAL costings.