Meeting Minutes: 2024-12-17

Present:
Uwe, David, Francesco Longo, Valentina, Andrea, Nicola, Irfan, Vincent, Ricardo Ditria, Rui, Markus, Federica, Aldo, Nicolo, Jan, +2 (please complete)

At present we have seven proposed modifications. We have confirmed care-takers for all but two approaches (Side Mask and thicker DSSDs). DTU confirmed, that they can handle the simulation and analysis part on their own. There were remarks, that mass models should stay in the realm of realizable design proposals (exchange with hardware experts) to avoid sinking time into unrealistic options. There also needs to be a close exchange with the science groups. (Remark: This should be already partially taken care of, since whoever proposed the change is up to now asked to run the relevant simulations. The participating groups also have at least general knowledge about modifications they want to make and are in exchange with other people to fill gaps). Andrea proposed to change from the grass-roots approach, where individual groups present their changes (under defined mission constraints) and the M8 proposer group/ management converges to the proposal design to a top-down approach, where management tells the simulation group what to do.

There was no opposition to set up the search for the optimal configuration as a trade study with fixed mass budget. The proposed order of simulations was to simulate the modification with the default second detector first (e.g. light coded mask + default D2, CZT modification + default D1) and then decide, if it is worth the effort to simulate the other options,

With regards to mass budget, Uwe remarked that we should not restrict ourselves to M7, but maximize the mass envelope, since we already know, that the sensitivity possible with the M7 design will not suffice. This might need further discussion.

There was agreement to use MEGAlibv3 for the setup of all mass models and for event reconstruction in the Compton regime and to use a combination of MEGAlib simulations regime external processing in the pair regime to make the output compatible to the analysis done in M7. There should be no issue with the simulated physics as both can use the same list (EMLivermorePol).
Uwe suggested to explore the possibility to share the analysis code (currently in FORTRAN?) to avoid overloading the Bologna group with all pair analysis. Andrea agreed to talk with the author of the code (Allesandro?) about this option. Since the code is written in a non-standard language and no available documentation, there would be some additional overhead before the analysis tool could be used by a greater audience. Uwe also suggested that we should aim at dampening the bump in the sensitivity curve between the Compton and pair regime, which is partially due to physics but presumably also due to switch of reconstruction procedure.

Mainz agreed to setup a document finalizing the simulation and analysis procedure as well as the necessary calculations in order to arrive at an apples-to-apples comparison in the end.

The remaining people agreed to explore the possibility of weekly meetings starting at the beginning of January. Also hardware and science groups should start the exchange of ideas as soon as possible.