MAGIC in SimTelArray

Introducing MAGIC in simtelarray

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cherenkov telescope array

an observatory for ground-based gamma-ray astronomy

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MAGIC in SimTelArray

Simulating MAGIC with sim_telarray

- Main difficulty has been to establish correspondence among various parameters and their relationships as they are defined in two (different) simulation softwares
- Still resolving some technical and visualization issues, but main work on including MAGIC telescopes' configuration into sim_telarray software already done
- Specific set of parameters will be determined empirically to match real MAGIC performance (e.g. Discriminator Threshold)
- First test MC files being produced as we speak!

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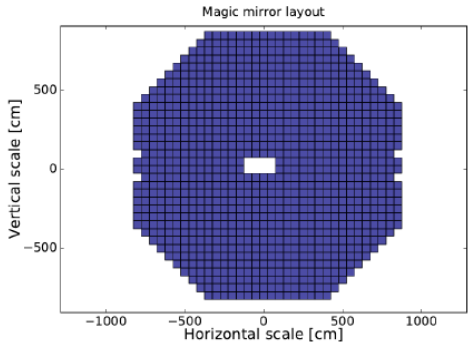
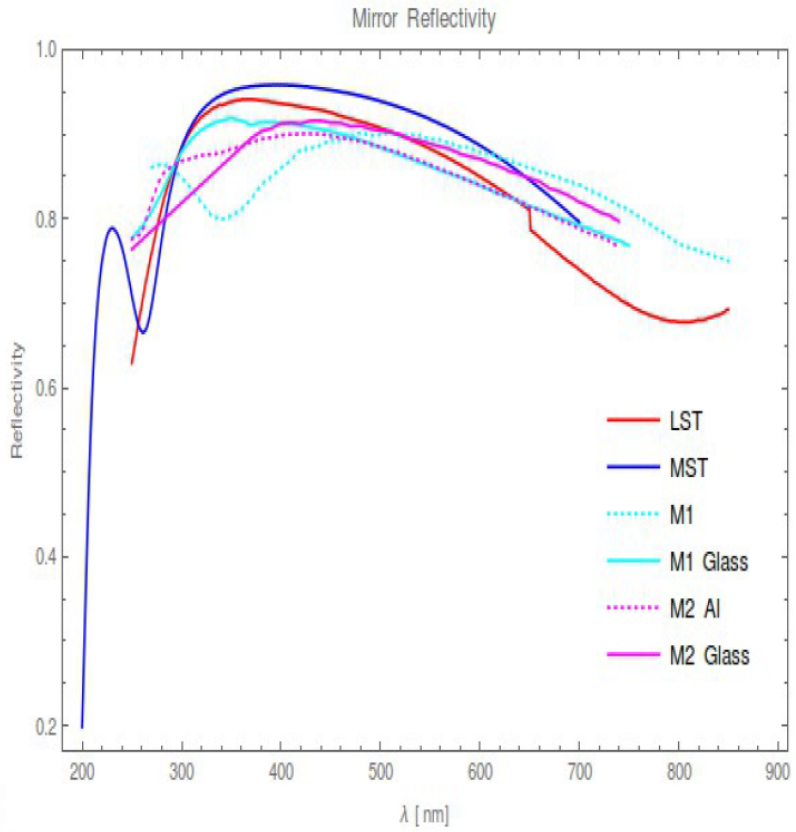
MAGIC in SimTelArray

Simulating MAGIC with sim_telarray

- MAGIC Reflectors





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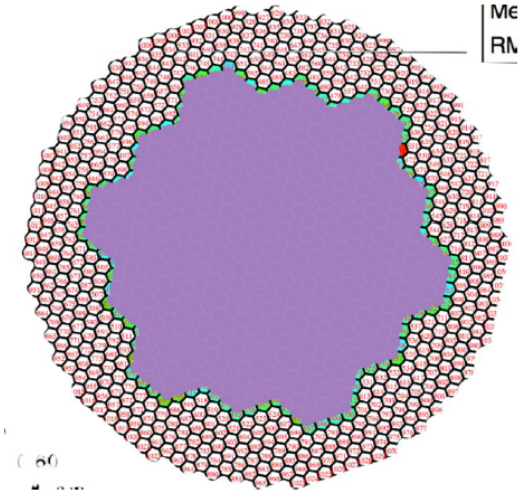
MAGIC in SimTelArray

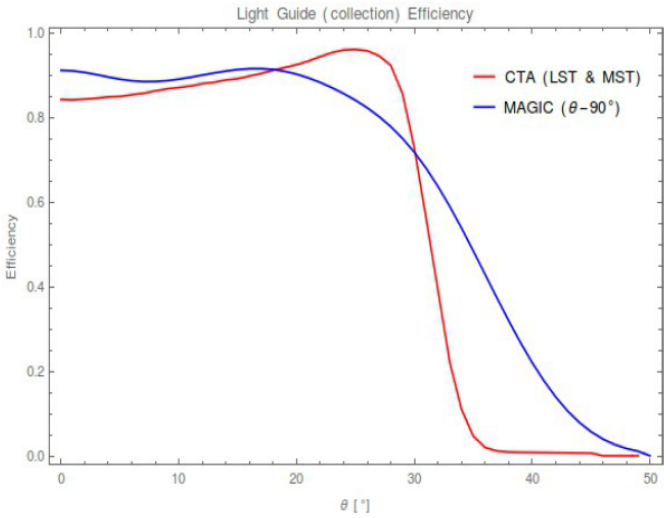
Simulating MAGIC with sim_telarray

- MAGIC Camera



Trigger region match with original MAGIC configuration

Light guides efficiency



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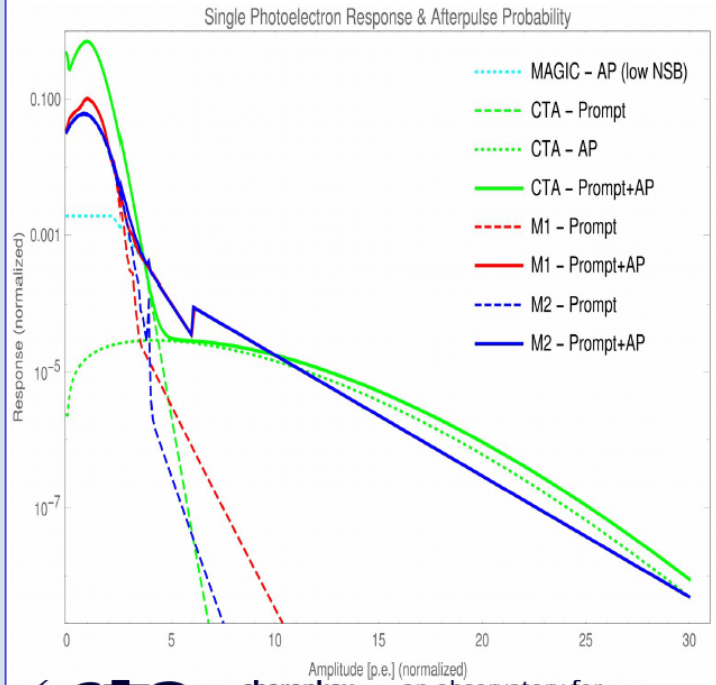
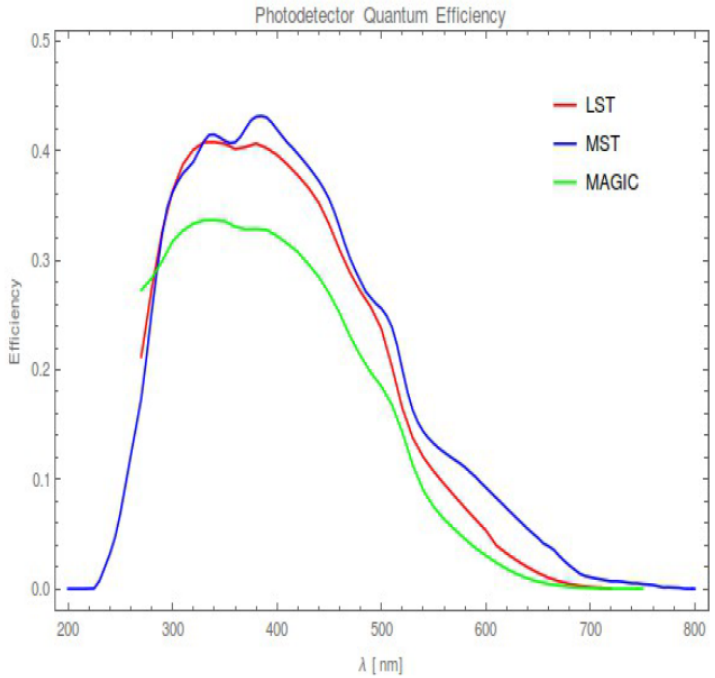
MAGIC in SimTelArray

PMTs, QE single pe response & After-Pulsing

- Some extrapolations were needed of the SPER & AP curves used in the MAGIC MC, to extend their range





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MAGIC simulation in SimTelArray

- From Dijana: last semester finished last week … not have time to progress much on this afterwards…
- The idea is to first simulate M1 and M2 with Simtelarray, and the next step is adding LST-1 (important for LST-1 commissioning phase) and later the other LSTs, maybe also MSTs.
- The part with introducing the custom locations of M1 and M2 into simtelarray CTA-N was already tested, and works. Also, most of the config files for the mirrors and the cameras are already prepared.

MAGIC simulation in SimTelArray

- What could be nice at this point, is helping preparing the files with all actually used trigger combinations of MAGICs, as input for the Simtelarray. So somebody with experience in simulating triggers (somebody who is interested and has available time in the soon future) could help.
- After that, simulations can be done on our supercomputer in Rijeka, this part has already been tested, and clarified regarding computing time etc.

- Note : confidential info !