MC ep ratio mean before calibration
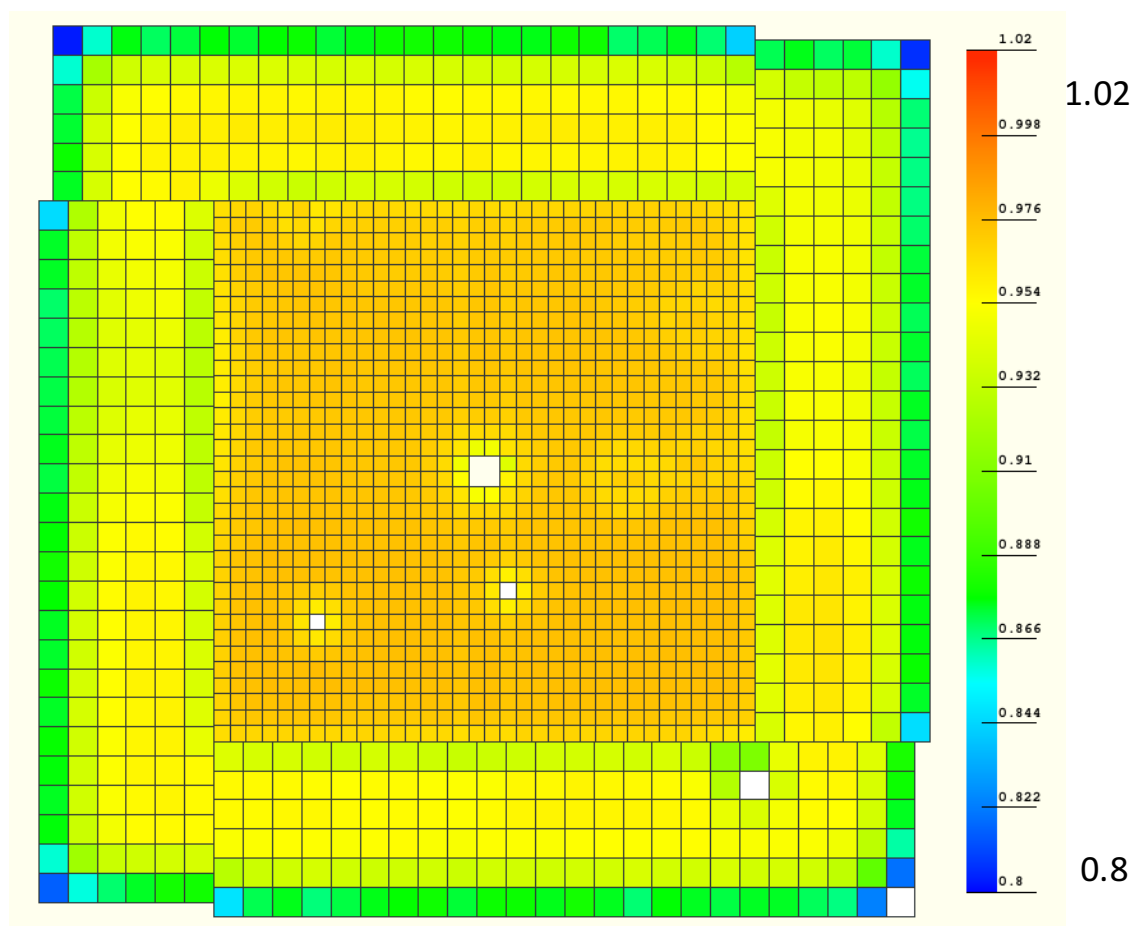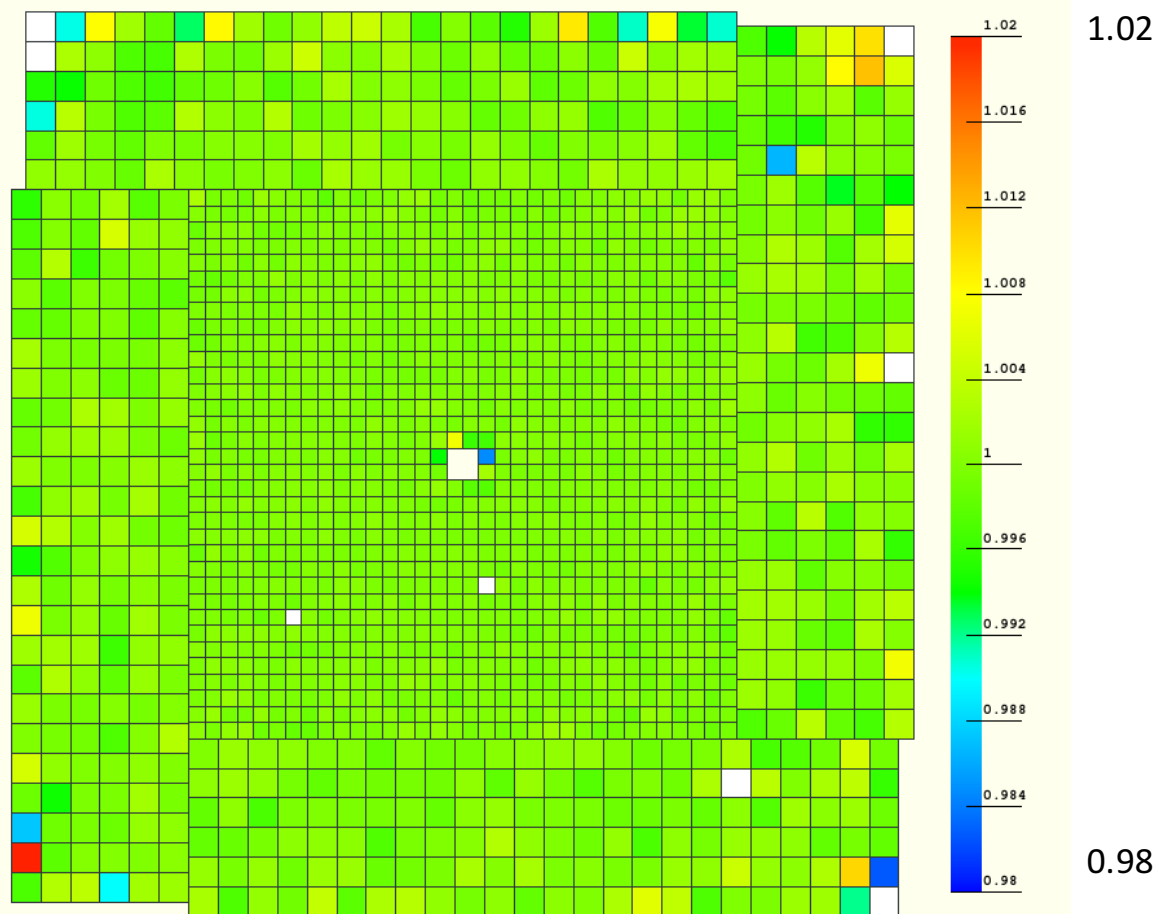
- ep ratio = (reconstructed ep cluster energy) / (expected ep energy)

- If no correction, the MC data tend to be less than the expected

- Difference is not uniform, transition and edge loss more energy

- We may correct this by doing MC calibration

MC ep ratio mean after calibration

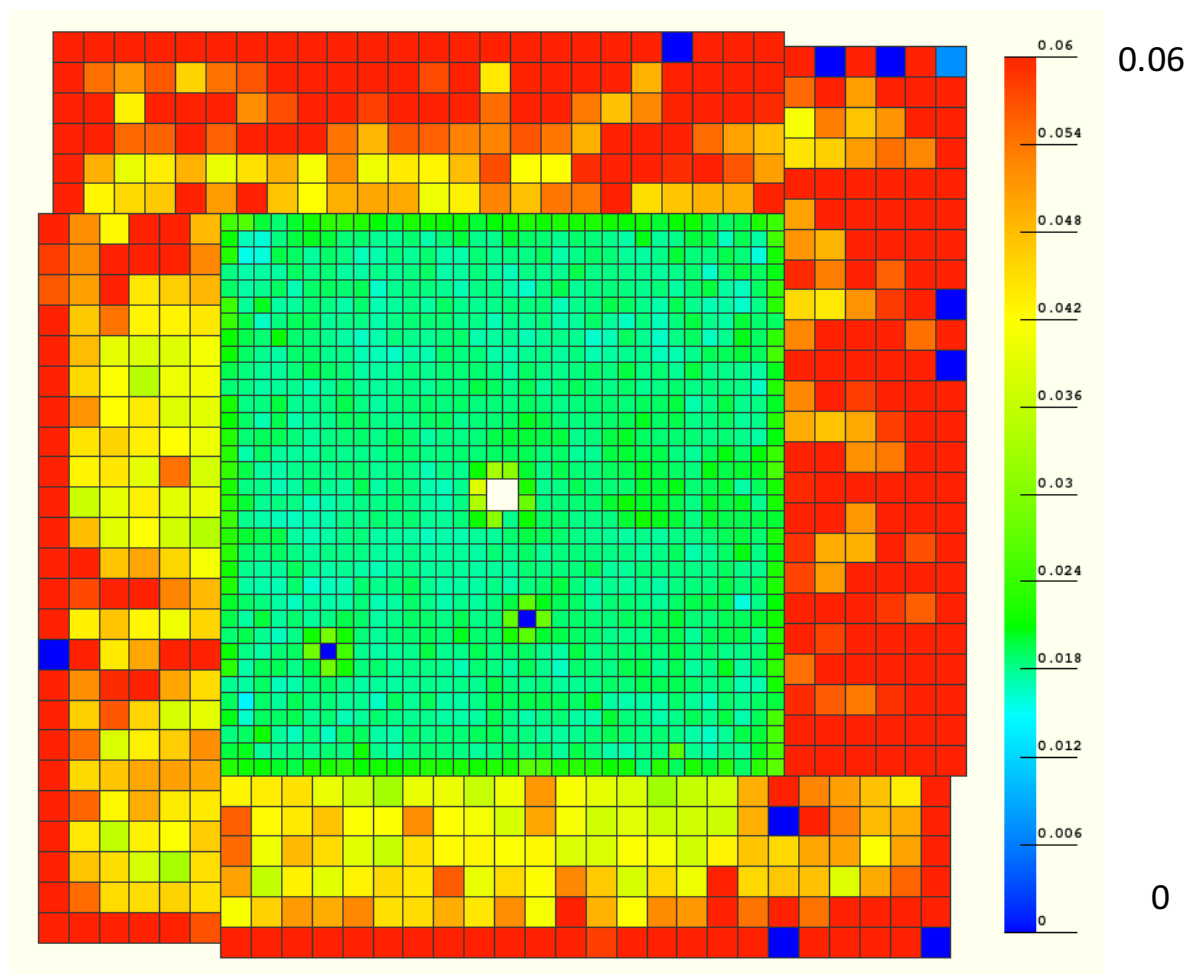# Data ep ratio mean after calibration

Data ep ratio sigma after calibration

From the data, it seems the two LG sectors on the top and right have slightly worse resolution compared to the other two

However such difference is not observed for ee (quite uniform)

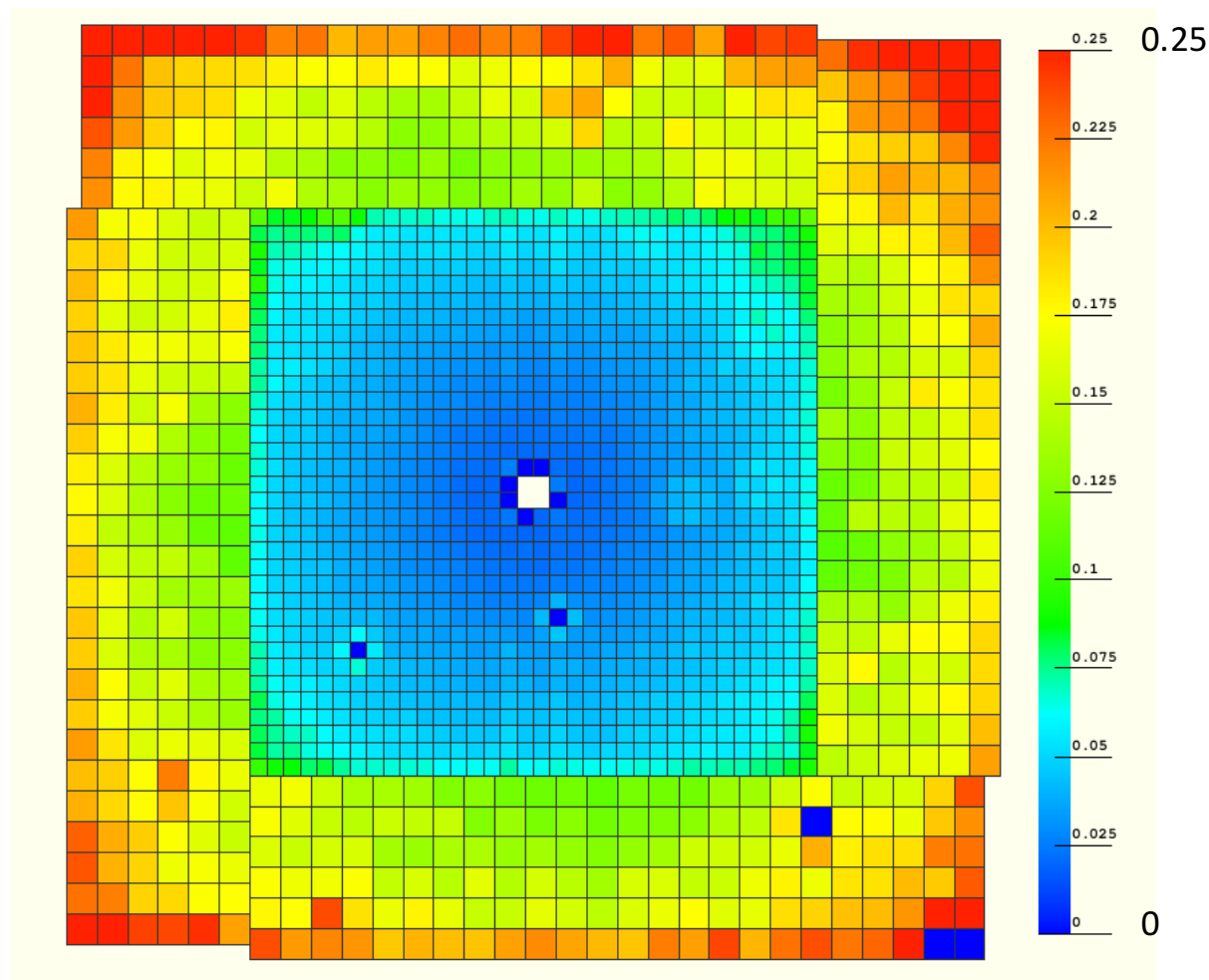We have seen such different non-linearity behavior before

Data ee ratio sigma after calibration

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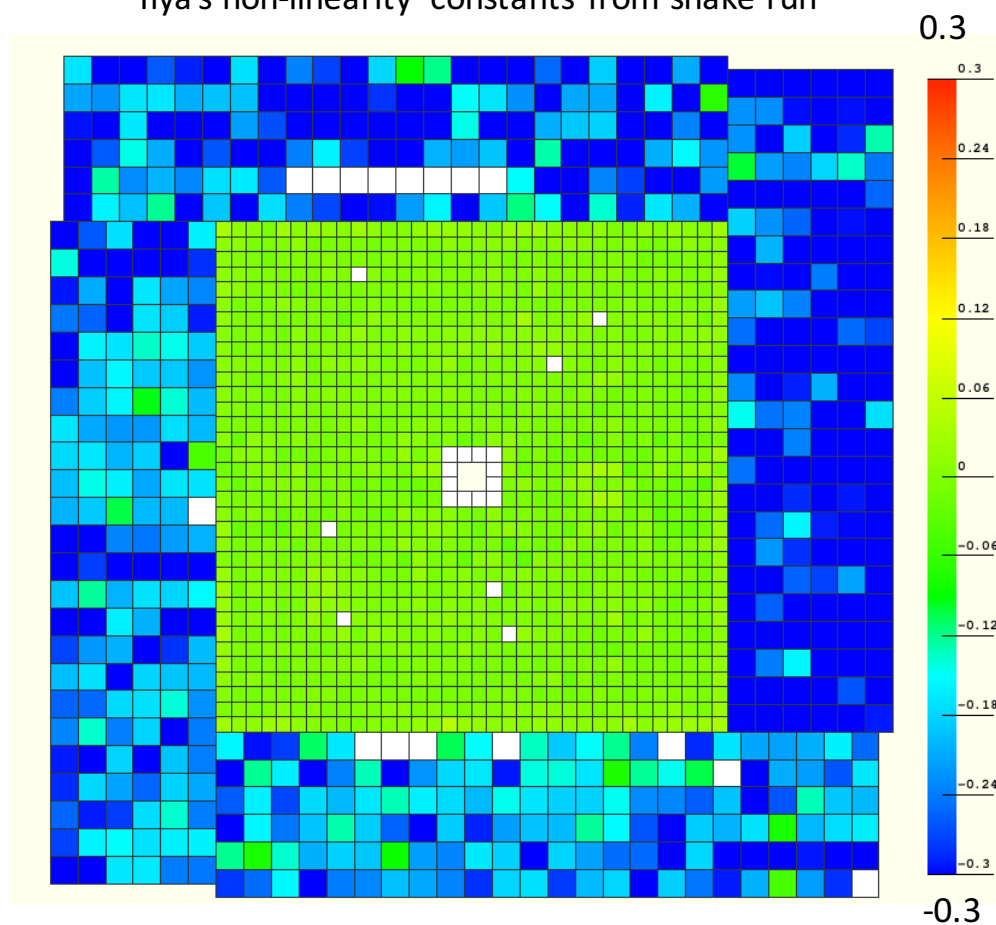
Nonlinearity behavior of the LG sectors

Ilya's non-linearity constants from snake run

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This pattern also observed from the LMS fluctuation in the LG

MC ep ratio sigma after calibration

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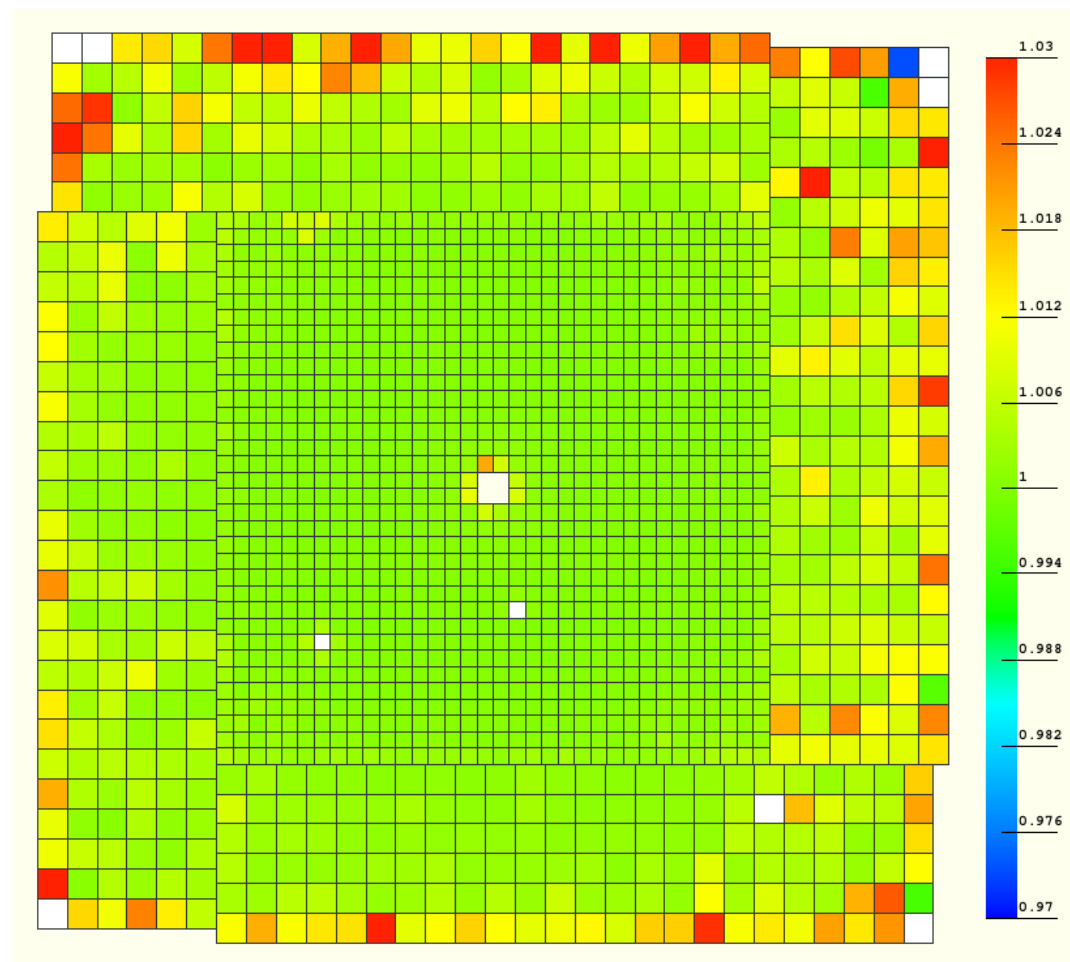However such difference is not observed for ee (quite uniform)

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In the MC calibration we can always tune the parameter such that the sigma match for each module for ep
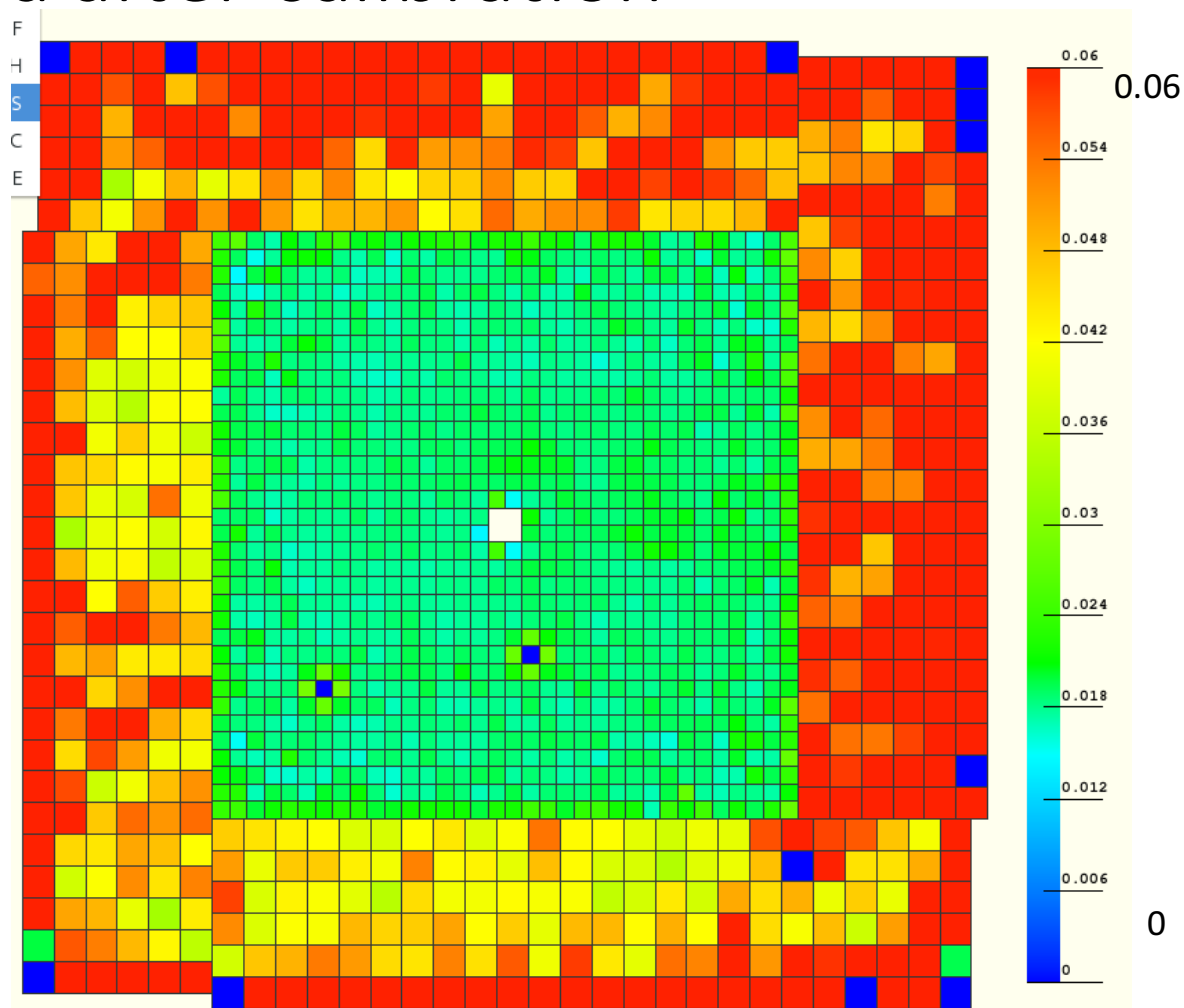
MC ee ratio mean after calibration

Summary

- Currently the width of ep matches pretty well in both PWO, transition and LG, mean values are still a few MeV less in general. Want to spend the weekend to find out why

- ee width match well for PWO, not so well in LG due to non-linearity behavior of some LG modules (may not be top priority as for 2.2 GeV data we don't use ee > 2.5 deg)