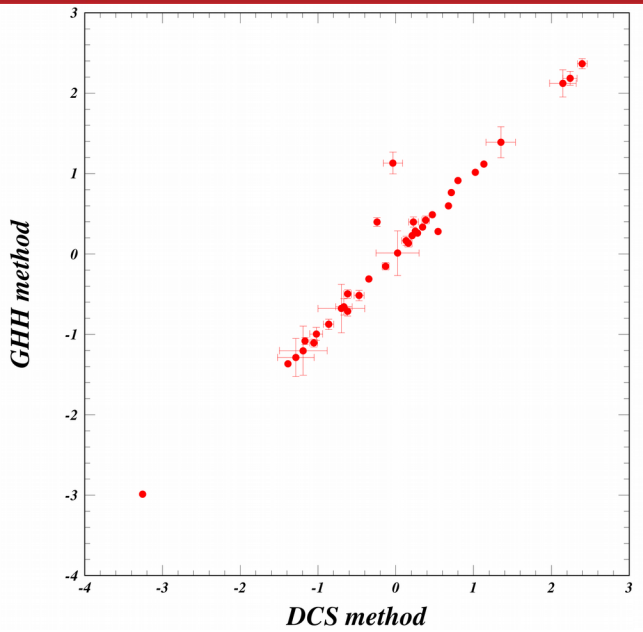
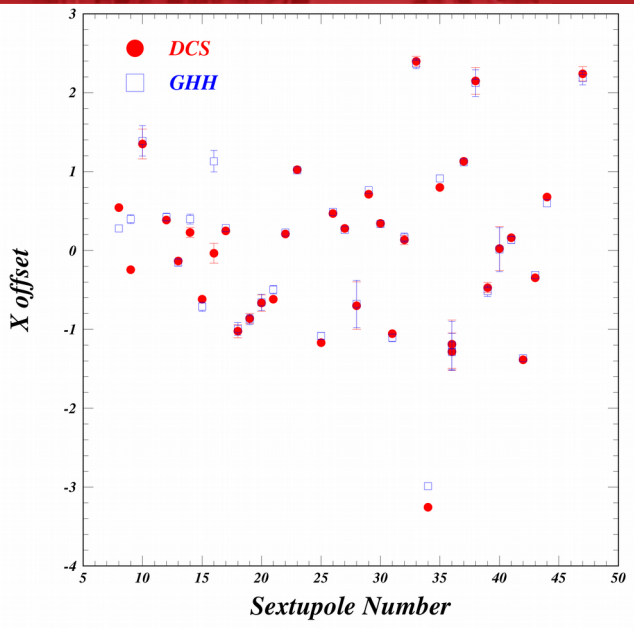
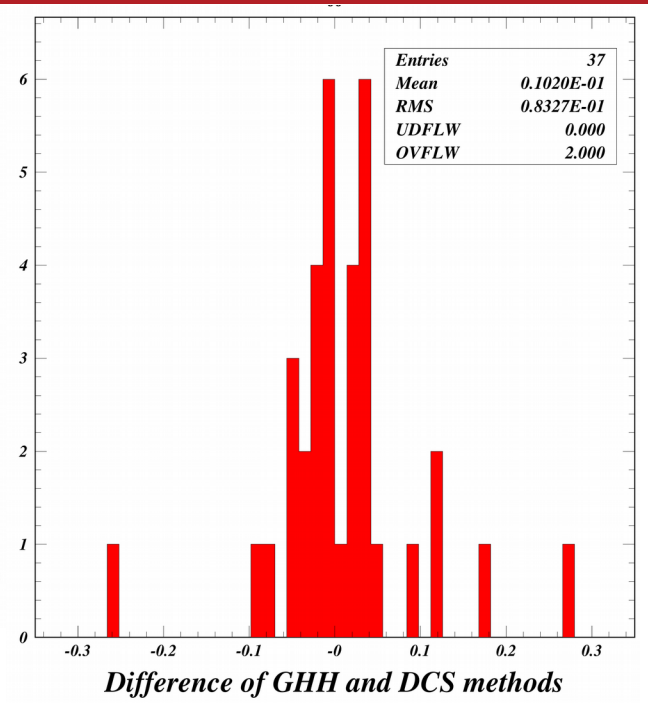
Comparison of the new, simpler GHH X_{sext} calculation to the one used until now in the sextupole calibration analysis







The new calculation uses local transport matrices between the neighboring BPMs and the sextupole, avoiding the use of beta function values, which are sensitive to errors around the ring.

With the exception of 2 of the 37 sextupoles in this sample, the agreement is better than 0.083 mm RMS.

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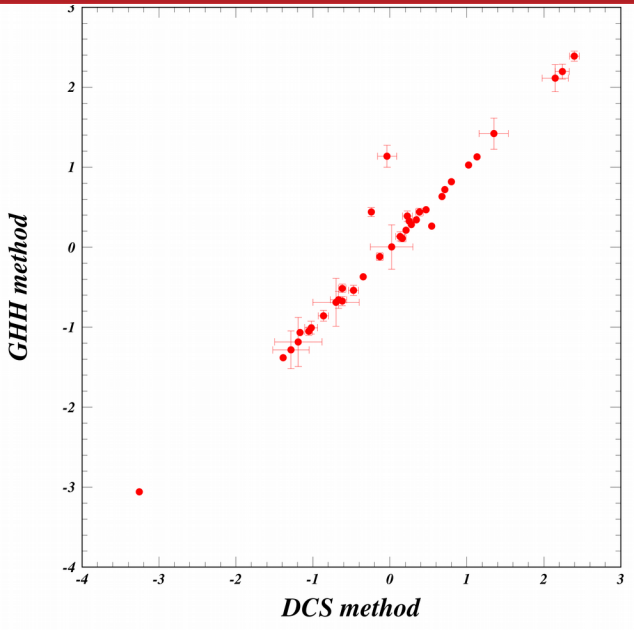

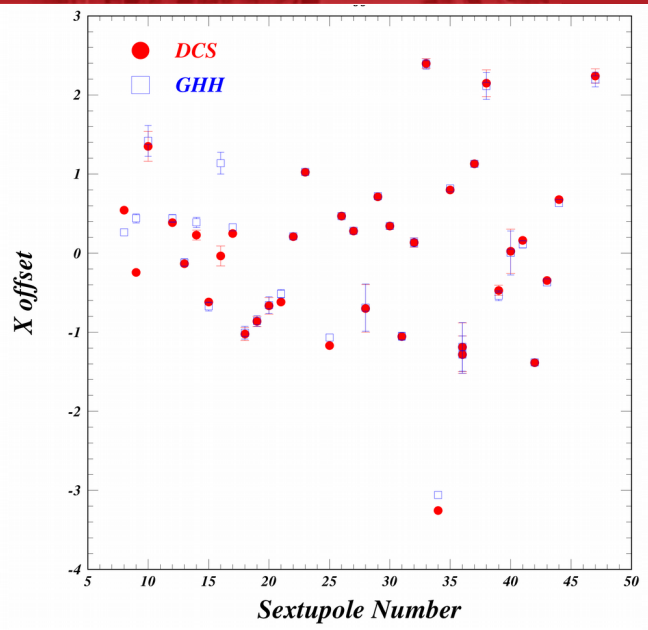

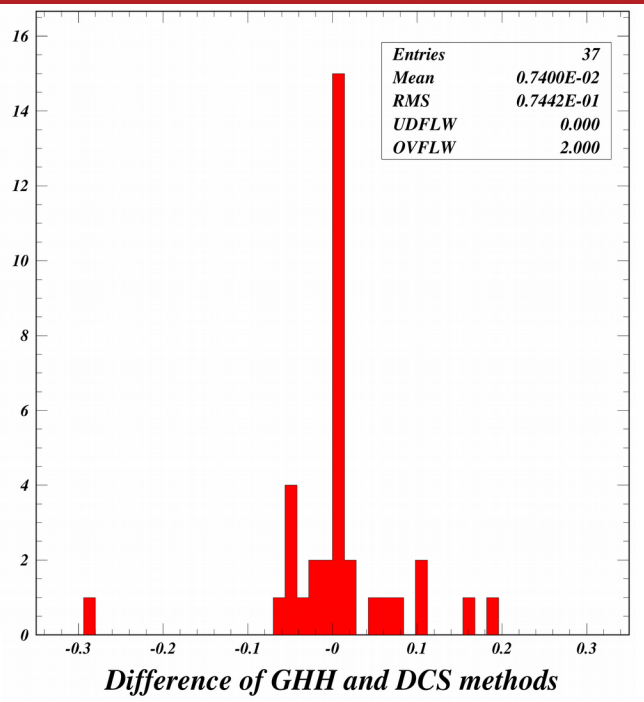

This slide added 20 November 2022. During the meeting it was suggested that this comparison should be more exact, since the original calculation using beta values and phase advances should be no different from that calculated using matrix elements.

The new values were calculated at the ends of the sextupoles, so the angle affects the comparison with the original values, which were calculated at the center of the sexupoles.

Here we plot the values for the new method now calculated at the centers of the sextupoles. The comparison is only marginally improved, from 83 to 74 microns rms. The angles have little effect.