

SCRF Meeting

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Cryomodule and Magnet Position

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Why Center is better?

- **The quadrupole at the center is in the most stable position** with respect to external forces induced by cryogenic working points oscillations.
- The central position **allows to implement the “easy” option of motorizing the center post** to compensate sub-micron x-y variations of the quadrupole position induced by:
 - Thermal effects on shields and environments
 - Quad axis dependence from current
- **Quad/BPM correlation and beam based alignments** tools are the key elements.
- **Frequencies below 10 Hz** can be cured

Why not independent Quad module ?

- **It increases cost and length**
- **It increases the unpredictable forces** acting on the quad package: bellows compensating mechanical tolerances, pressure variations in the cryogenic pipes. TTF experience shown that with 4 K quad the situation is even worst.
- **It does not do any better** then the possibility of motorizing the quad on x and y in the present design.

Nick/Carlo comments

- ... data from the stretched wire monitors showing diurnal motion of the quads in the cryomodules on the levels of microns.
- ... this small daily oscillation you mention is something that I remember from very old measurements we did in 1998/99.

