Section 13 PEP-II HER Modifications

To avoid interference with the PEP-N detector, the central quad (QDRFC) of the HER IR12 needs to be removed. To restore the lattice functions, one option is to replace it with a pair of quadrupoles symmetric about the center of the IR and at a suitable distance.

Fig. 13-1 shows a possible layout and lattice functions with 6 m of free space at the center. To match the optics, four quadrupoles on either side of the center were varied in strength, achieving good match of the lattice functions with only a small (±0.03) shift in phase advance and no additional beta beating. The free space can be increased to 10 m at the expense of increased strength in QFRFC2 and QDRFCh. The disadvantage of this solution is that it requires four new power supplies, since at present the QFRFC and QDRFC magnets in IRs 8 and 12 are powered together on one string. More work will be done to investigate solutions with a lesser number of new power supplies.

Table 13-1 of Magnet Strengths:

	old (Tm)	new (Tm)	Power spl./ pair V/ A
QFRFC	0.14653928	0.14388888	30/ 150
QDRFC	- 0.1465393	- 0.1454039	30/ 150
QFRFC2	0.14653928	0.20981192	40/ 200
QDRFCh	-	- 0.2193854	40/ 200

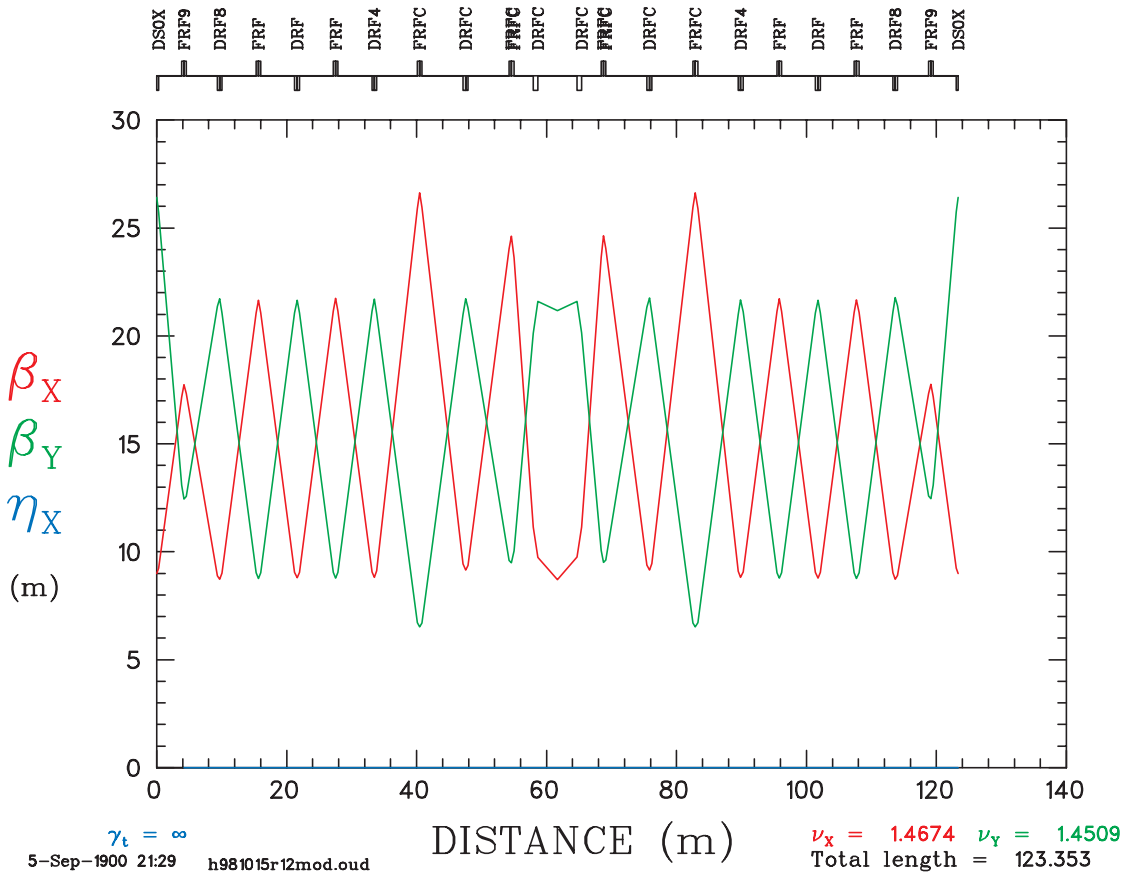

Fig. 13-1: Modified HER IR12 lattice functions.