

ISR RUNNING-INRun 87 - 19 July 1971Ring 2 - 15 GeV/c - 20 bunchesInfluence of skew quadrupoles on beam lifetimeWorking line FS15

When changing the working line from CLEO to FATA ($\Delta Q_H = -0.212$), a displacement of 3.5 mm of the average injection radius was observed. The expected displacement was 1 mm. Thus, it is necessary to adjust the main magnetic field to fit the injection radius when changing the working line.

The field display settings were:

15.343 GeV/c for CLEO, and
15.314 GeV/c for FATA .

During run 77 a series of aperture scans were performed for different settings of the skew quadrupoles. The observed beam losses showed a minimum at a setting of $Q_1 = -5\%$.

Stacks of 3 A were made during the present run and their lifetimes were measured as a function of the excitation of the skew quadrupoles. The available time limited the number of points to 3:

A beam loss of 270 PPM/min. was measured without excitation of the skew quadrupoles. An excitation to -2.5% gave a less regular beam loss of 710 PPM/min. and the excitation to $+2.5\%$ yielded a beam loss of 600 PPM/min.

It can be concluded that the beam lifetime measurements did not at all confirm the results of the aperture scan measurements. The latter should, therefore, be used only to observe excitation of resonances and not as an absolute measurement of the quality of a working line.

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CM-P00072586

It would be interesting to repeat these lifetime measurements at 26 GeV/c where a tilt of the main magnet median plane is more likely to appear.

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