

RESONANCE CORRECTION STUDIES AT THE FNAL RECYCLER RING

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ABSTRACT

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TABLE OF CONTENTS

LIST OF ABBREVIATIONS	vi
CHAPTER 1: SINGLE PARTICLE DYNAMICS	1
CHAPTER 2: THE FNAL RECYCLER RING	2
2.1: General Specifications	2
2.2: Tune Diagram and Resonances	2
2.3: High Intensity and Tune Footprint	2
CHAPTER 3: COMPENSATION OF THIRD-ORDER RESONANCES AT LOW INTENSITIES	3
3.1: Global RDTs and Lattice Model	3
3.2: Measurement of Third Order RDTs	3
3.3: Compensation of RDTs	3
3.4: Experimental Verification of Compensation	3
BIBLIOGRAPHY	4
APPENDIX YOUR APPENDIX	5

LIST OF ABBREVIATIONS

MSU	Michigan State University
FNAL	Fermilab National Accelerator Laboratory
RR	Recycler Ring
MI	Main Injector

CHAPTER 1

SINGLE PARTICLE DYNAMICS

The most basic element of a particle accelerator can be thought of as a black box. This black box takes some initial transverse coordinates x_0, x'_0, y_0, y'_0 , as defined in a Frenet-Serret coordinate system, and maps them to some final coordinates x_f, x'_f, y_f, y'_f . For simplicity, any longitudinal effect will not be taken into account for this analysis [1] [2] [3] [4].

CHAPTER 2

THE FNAL RECYCLER RING

The Fermilab Recycler Ring (RR) is one of the circular accelerators located .

2.1 General Specifications

2.2 Tune Diagram and Resonances

2.3 High Intensity and Tune Footprint

CHAPTER 3

COMPENSATION OF THIRD-ORDER RESONANCES AT LOW INTENSITIES

3.1 Global RDTs and Lattice Model

3.2 Measurement of Third Order RDTs

3.3 Compensation of RDTs

3.4 Experimental Verification of Compensation

3.4.1 Dynamic Loss Map

3.4.2 Static Tune Scans

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APPENDIX
YOUR APPENDIX