

1. Record Nr.	UNINA9910461548103321
Autore	Wang J. G (Jian Guang)
Titolo	Magnetic fringe fields and interference in high intensity accelerators [[electronic resource] /] / J.G. Wang
Pubbl/distr/stampa	Hauppauge, N.Y., : Nova Science Publishers, c2010
ISBN	1-61470-201-2
Descrizione fisica	1 online resource (210 p.)
Disciplina	539.7/3
Soggetti	Neutrons - Scattering Spallation (Nuclear physics) Proton accelerators Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	""MAGNETIC FRINGE FIELDS AND INTERFERENCE IN HIGH INTENSITY ACCELERATORS""; ""MAGNETIC FRINGE FIELDS AND INTERFERENCE IN HIGH INTENSITY ACCELERATORS ""; ""CONTENTS ""; ""PREFACE ""; ""INTRODUCTION""; ""1.1. BACKGROUND ""; ""1.2. RESEARCH ISSUES ""; ""1.3. SYNOPSIS ""; ""REFERENCES ""; ""FUNDAMENTALS OF ACCELERATOR MAGNETS""; ""2.1. MAGNETOSTATIC FIELDS ""; ""2.2. TWO-DIMENSIONAL FIELDS ""; ""2.3. PARTICLE MOTION ""; ""2.4. DIPOLE MAGNETS""; ""2.5. QUADRUPOLE MAGNETS""; ""2.6. MAGNET MEASUREMENTS""; ""REFERENCES ""; ""MAGNET MODELING""; ""3.1. OVERVIEW OF SIMULATION CODES"" ""3.2. OPERA/TOSCA """"3.3. A MODELING EXAMPLE ""; ""REFERENCES ""; ""THREE-DIMENSIONAL FIELD MULTIPOLE EXPANSION ""; ""4.1. REVIEW OF THEORY ""; ""4.2. EXPANSION TECHNIQUES""; ""4.3. ON-AXIS GRADIENTS ""; ""4.4. A 5TH-ORDER REPRESENTATION ""; ""4.5. HIGHER-ORDER EFFECTS ""; ""REFERENCES ""; ""PARTICLE OPTICS IN A SINGLE QUAD ""; ""5.1. SIMULATION MODEL OF 30Q58 AND FIELD DISTRIBUTIONS ""; ""5.2 PARTICLE TRAJECTORIES AND TRANSFER MATRICES ""; ""5.3.THREE-DIMENSIONAL MULIPOLE EXPANSION AND LINEARFOCUSING FUNCTION""; ""5.4. FORM FACTOR THEORY ON MAGNETIC FRINGE FIELDS "" ""5.5. LINEAR TRANSFER MATRICES FROM THE TRAJECTORY

EQUATIONS""5.6. LENS PARAMETERS AND HARD EDGE MODELS "";
""5.7. THIRD-ORDER ABERRATIONS""; ""5.8. PARTICLE OPTICS IN 30Q44
""; ""REFERENCES ""; ""MAGNETIC INTERFERENCE BETWEEN TWO
MAGNETS ""; ""6.1. CHANGE IN LINEAR FOCUSING FUNCTION ""; ""6.2.
MAGNETIC INTERFERENCE AS A FIRST-ORDER PERTURBATION""; ""6.3.
HARD EDGE MODELS FOR A PERTURBED QUAD""; ""REFERENCES"";
""PARTICLE OPTICS IN A QUAD DOUBLET ASSEMBLY""; ""7.1. TWO-
DIMENSIONAL FIELD PARAMETERS ""; ""7.2. MAGNETIC FRINGE AND
INTERFERENCE ""
""7.3. LINEAR TRANSFER MATRICES AND HARD EDGE MODELS """"7.4.
THIRD-ORDER ABERRATIONS ""; ""7.5. VERIFICATION OF PARTICLE
TRAJECTORIES ""; ""REFERENCES""; ""PARTICLE TRACKING IN BEAM LINES
""; ""8.1. SNS RING INJECTION AND WASTE BEAM LOSSES ""; ""8.2.
INJECTION CONSTRAINTS""; ""8.2.1. Closed Orbit Bump and Good
Injection ""; ""8.2.2. Transport of Waste Beams Through IDSM ""; ""8.3.
THREE-DIMENSIONAL MODELING OF INJECTION WASTE BEAM DUMP
LINE ""; ""8.3.1. Simulation Models ""; ""8.3.2. Magnets and Fields on
Beam Line ""; ""8.3.3. Initial Conditions of Test Particles ""
""8.4. THREE-DIMENSIONAL PARTICLE TRAJECTORIES THROUGH IDSM
""""8.5. PARTICLE OPTICS THROUGH QUADRUPOLE MAGNET TO DUMP
""; ""8.6. REMEDIES ""; ""8.6.1. Ha??-Proton Particle Losses in the Y-
Direction in IDSM ""; ""8.6.2. H0-Proton Particle Losses in the X-
Direction in IDSM ""; ""8.6.3. Modification of a Spare IDSM ""; ""8.6.4.
Waste Beam Losses Downstream after Quadrupole Magnet ""; ""8.7.
EXPERIMENTAL VERIFICATIONS ""; ""REFERENCES""; ""SNS RING
EXTRACTION LAMBERTSON SEPTUM MAGNET ""; ""9.1. BEAM PROFILE
DISTORTION DUE TO STRONG SKEW QUAD TERM IN ELS ""
""9.2. THREE-DIMENSIONAL SIMULATION MODEL ""
