

Where To
Download Stress
Analysis Of
*Stress Analysis
Of Cracks
Handbook*
Handbook

**The Boundary
Integral Equation
(BIE) or the
Boundary
Element Method
is now well
established as an
efficient and
accurate**

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**numerical
technique for
engineering
problems. This
book presents
the application
of this technique
to axisymmetric
engineering
problems, where
the geometry
and applied
loads are
symmetrical**

Where To
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**about an axis of
rotation.**

**Emphasis is
placed on using
isoparametric
quadratic
elements which
exhibit excellent
modelling
capabilities.
Efficient
numerical
integration
schemes are also**

Where To
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**presented in
detail. Unlike the
Finite Element
Method (FEM),
the BIE
adaptation to
axisymmetric
problems is not a
straightforward
modification of
the two or three-
dimensional
formulations.
Two approaches**

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**can be used;
either a purely
axisymmetric
approach based
on assuming a
ring of load, or,
alternatively,
integrating the t
hree-dimensional
fundamental
solution of a
point load
around the axis
of rotational**

Where To
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symmetry.

**Throughout this
book, both
approaches are
used and are
shown to arrive
at identical
solutions. The
book starts with
axisymmetric
potential
problems and
extends the
formulation to**

Where To
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**elasticity,
thermoelasticity,
centrifugal and
fracture
mechanics
problems. The
accuracy of the
formulation is
demonstrated by
solving several
practical
engineering
problems and
comparing the**

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BIE solution to analytical or other numerical methods such as the FEM. This book provides a foundation for further research into axisymmetric problems, such as elastoplasticity, contact, time-

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dependent and creep problems. Intended for engineers from a variety of disciplines dealing with structural materials, this text describes the current state of knowledge. It begins by describing the

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**fracture process
at the two
extremes of
scale: first in the
context of atomic
structures, then
in terms of a
continuous
elastic medium.
Treating the
fracture process
in increasingly
sophisticated
ways, the book**

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**then considers
plastic
corrections and
the procedures
for measuring
the toughness of
materials.
Practical
considerations
are then
discussed,
including crack
propagation,
geometry**

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**dependence,
flaw density,
mechanisms of
failure by
cleavage, the
ductile-brittle
transition, and
continuum
damage
mechanics. The
whole is rounded
off with
discussions of
generalised**

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**plasticity and the
link between the
microscopic and
macroscopic
aspects, and
problems are
provided at the
end of each
chapter.**

**The Practical Use
of Fracture
Mechanics
Theory and
Application**

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**Airframe and
Powerplant
Mechanics
Powerplant
Handbook
Fundamentals
and Applications**

Written mainly for
specialists in non-
destructive
examination and
fracture
mechanics, this

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book provides
means to estimate
the opening
profiles of cracks
in loaded
structures.

Equations, non-
dimensional graph
plots, computer
software,
background
information and

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references are given which permit the calculation of the separation distances of crack faces as a function of crack size, applied loading etc. Sixteen different cases are covered by this Handbook. An

Where To
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Abington
Cracks Handbook
Publishing Special
Report

This book is about the use of fracture mechanics for the solution of practical problems; academic rigor is not at issue and dealt with only in as far as it

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improves insight
and

understanding; it
often concerns
secondary errors
in engineering.

Knowledge of
(ignorance of)
such basic input
as loads and
stresses in
practical cases

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may cause errors far overshadowing those introduced by shortcomings of fracture mechanics and necessary approximations; this is amply demonstrated in the text. I have presented more than three dozen

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40-hour courses
on fracture
mechanics and
damage tolerance
analysis, so that I
have probably
more experience in
teaching the
subject than
anyone else. I
learned more than
the students, and

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became cognizant of difficulties and of the real concerns in applications. In particular I found, how a subject should be explained to appeal to the practicing engineer to demonstrate

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that his practical problem can indeed be solved with engineering methods. This experience is reflected in the presentations in this book.

Sufficient background is provided for an

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understanding of
the issues, but
pragmatism
prevails.

Mathematics
cannot be avoided,
but they are
presented in a way
that appeals to
insight and
intuition, in lieu of
formal derivations

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which would show
but the

mathematical skill
of the writer.

Stress Intensity
Factors and
Weight Functions
Handbook of
Experimental
Stress Analysis
Structural Life
Assessment

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Methods Compendium of Stress Intensity Factors

This extensive source of crack stress analysis information is nearly double the size of the previous edition. Along

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with revisions,
the authors
provide 150 new
pages of
analysis and
information.
This classic
volume can
serve as an
excellent
reference, as
well as a text
for in-house

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training
courses in
various
industries and
academic
settings.
Fatigue of
structures and
materials
covers a wide
scope of
different
topics. The

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purpose of the present book is to explain these topics, to indicate how they can be analyzed, and how this can contribute to the designing of fatigue resistant structures and

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to prevent
structural
fatigue
problems in
service.

Chapter 1 gives
a general
survey of the
topic with
brief comments
on the
significance of
the aspects

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involved. This serves as a kind of a program for the following chapters. The central issues in this book are predictions of fatigue properties and designing against

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fatigue. These objectives cannot be realized without a physical and mechanical understanding of all relevant conditions. In Chapter 2 the book starts with basic

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concepts of what happens in the material of a structure under cyclic loads. It illustrates the large number of variables which can affect fatigue properties and it provides the

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essential
background
knowledge for
subsequent
chapters.

Different
subjects are
presented in
the following
main parts: •
Basic chapters
on fatigue
properties and

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predictions
(Chapters 2-8)

- Load spectra
and fatigue
under variable-
amplitude
loading

(Chapters 9-11)

- Fatigue tests
and scatter

(Chapters 12
and 13) •

Special fatigue

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conditions

(Chapters

14–17) •

Fatigue of

joints and

structures

(Chapters

18–20) • Fiber-

metal laminates

(Chapter 21)

Each chapter

presents a

discussion of a

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specific
subject.

Fracture
Mechanics,
Second Edition
High
Temperature
Component Life
Assessment
The Boundary
Integral
Equatio Method
in Axisymmetric

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Stress Analysis
Problems

Stress

Intensity

Factors

Handbook

*Now in a
hardbound format,
this extensive source
of crack stress
analysis
information is*

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nearly double the size of the previous edition. Along with revisions, the authors provide 150 new pages of analysis and information. This classic volume can serve as an excellent reference, as well as a text for in-house

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*training courses in
various industries
and academic
settings.*

*This book is a
product of the
understanding I
developed of stress
analysis applied to
plastics, while at
work at L. J.
Broutman and*

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Associates (UBA)
Cracks Handbook
and as a lecturer in
the seminars on this
topic co-sponsored
by UBA and Society
of Plastics
Engineers. I believe
that by its extent
and level of
treatment, this book
would serve as an
easy-to-read desktop

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*reference for
professionals, as
well as a text book
at the junior or
senior level in
undergraduate
programs. The main
theme of this book is
what to do with
computed stress. To
approach the theme
effectively, I have*

Where To
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*taken the "stress
category approach"
to stress analysis.
Such an approach is
being successfully
used in the nuclear
power field. In
plastics, this
approach helps in
the prediction of
long term behavior
of structures. To*

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*maintain interest I
have limited
derivations and
proofs to a
minimum, and
provided them, if at
all, as flow charts.
In this way, I
believe that one can
see better the
connection between
the variables,*

Where To
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*assumptions, and
Cracks Handbook
mathematics.*

*Structural and
Stress Analysis
Theory,
Applications, and
Numerics*

*A Compendium of
Equations, Graphs,
Computer Software
and References for*

Where To
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Analysis Of
*Opening Profiles of
Cracks in Loaded
Components and
Structures*

The aim of this book is to investigate and explain the rapid advances in the characterization of high temperature crack growth

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behaviour which
have been made in
recent years, with
reference to
industrial
applications.
Complicated
mathematics has
been minimized
with the emphasis
placed instead on
finding solutions
using simplified

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procedures
without the need
for complex
numerical
analysis.

This book
summarizes the
main methods of
experimental
stress analysis
and examines
their application to
various states of

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stress of major technical interest, highlighting aspects not always covered in the classic literature. It is explained how experimental stress analysis assists in the verification and completion of

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analytical and
numerical models,
the development
of
phenomenological
theories, the
measurement and
control of system
parameters under
operating
conditions, and
identification of
causes of failure

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or malfunction.

Cases addressed

include

measurement of
the state of stress

in models,

measurement of

actual loads on

structures,

verification of

stress states in

circumstances of

complex

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numerical modeling, assessment of stress-related material damage, and reliability analysis of artifacts (e.g. prostheses) that interact with biological systems. The book will serve

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graduate students
and professionals
as a valuable tool
for finding
solutions when
analytical
solutions do not
exist.

Cracks and
Fracture
Stress Analysis
by Boundary
Element Methods

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Cracks Handbook
Fatigue of
Structures and
Materials
The Life of
Cracks
Elasticity: Theory,
Applications and
Numerics Second
Edition provides a
concise and
organized
presentation and

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development of
the theory of
elasticity, moving
from solution
methodologies,
formulations and
strategies into
applications of
contemporary
interest, including
fracture
mechanics, anisotr

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opic/composite materials, micromechanics and computational methods.

Developed as a text for a one- or two-semester graduate elasticity course, this new edition is the only elasticity text to

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provide coverage in the new area of non-homogenous, or graded, material behavior.

Extensive end-of-chapter exercises throughout the book are fully incorporated with the use of MATLAB software.

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Provides a
thorough yet
concise
introduction to
general elastic
theory and
behavior
Demonstrates
numerous
applications in
areas of
contemporary

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interest including
fracture

mechanics, anisotropic/composite and graded materials, micromechanics, and computational methods The only current elasticity text to incorporate MATLAB into its

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extensive end-of-
chapter exercises

The book's
organization
makes it well-
suited for a one or
two semester
course in elasticity

Features New to
the Second
Edition: First
elasticity text to

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offer a chapter on
non-homogenous,
or graded, material
behavior New
appendix on
review of
undergraduate
mechanics of
materials theory to
make the text
more self-
contained 355 end

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of chapter
exercises – 30%
NEW to this edition
The second
volume in a series
comprising a
reliable source of
failure analysis
case studies for
engineering
professionals.
Volume 1 (1992)

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was reviewed in
the April 1993
SciTech Book
News . Volume 2
contains 131 new
case studies in the
areas of
transportation
component failures
(aircraft-
aerospace/g
Stress Analysis

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Models for
Developing Design
Methodologies
Nonlinear Fracture
Mechanics
Handbook of
Fatigue Crack
Propagation in
Metallic Structures
Fracture
Mechanics
Student design

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***engineers often
require a
"cookbook"
approach to
solving certain
problems in
mechanical
engineering. With
this focus on
providing
simplified
information that is
easy to retrieve,***

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*retired mechanical
design engineer*

*Keith L. Richards
has written Design
Engineer's
Handbook. This
book conveys the
author's insights
from his decades
of experience in
fields ranging from
machine tools to
aerospace.*

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Sharing the vast knowledge and experience that has served him well in his own career, this book is specifically aimed at the student design engineer who has left full- or part-time academic studies and requires a

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***handy reference
handbook to use
in practice. Full of
material often left
out of many
academic
references, this
book includes
important in-depth
coverage of key
topics, such as:
Effects of fatigue
and fracture in***

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*catastrophic failures Lugs and
shear pins Helical
compression
springs Thick-
walled or
compound
cylinders Cam and
follower design
Beams and torsion
Limits and fits and
gear systems Use
of Mohr's circle in*

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***both analytical and
experimental
stress analysis
This guide has
been written not to
replace
established
primary reference
books but to
provide a
secondary
handbook that
gives student***

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***designers
additional
guidance. Helping
readers determine
the most efficiently
designed and cost-
effective solutions
to a variety of
engineering
problems, this
book offers a
wealth of tables,
graphs, and***

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***detailed design
examples that will
benefit new
mechanical
engineers from all
walks.***

***This book covers
both theoretical
and practical
aspects of fracture
mechanics and
integrates
materials science***

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with solid
mechanics.
Cracks Handbook

***Proceedings of the
Ninth National
Symposium on
Fracture
Mechanics : a
Symposium
Sponsored by
Committee E-24 on
Fracture Testing of
Metals, American
Society for Testing***

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**and Materials,
University of
Pittsburgh,
Pittsburgh, Pa.,
25-27 Aug. 1975
Applied Stress
Analysis of
Plastics
Experimental
Stress Analysis for
Materials and
Structures
Elasticity**

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Cracks Handbook

In this book the authors describe methods for the calculation of weight functions. In the first part they discuss the accuracy and convergence behaviour of methods for one- and two-dimensional cracks, while in the

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second part they
provide solutions

for cracks
subjected to mode-
I and mode-II
loading.

Many people find
the concept of
fracture and
damage mechanics
to be somewhat
problematic,
mainly because,
until recently, close

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attention in mechanics was focused especially on the strength and resistance of materials. In this sense, to speak of fracture is as uncomfortable for some as it is to speak of a deadly disease. In confronting and preventing a fatal

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disease, one must understand its complexity, symptoms, and behavior; by the same token, in securing the strength of an engineering structure, one must understand the reasons and type of its potential failure. This book

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will provide knowledge and insights on this matter to its readers.

A Mechanical Engineering Approach Handbook of Case Histories in Failure Analysis, Volume 2 Mechanics and Mechanisms of Fracture

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Cracks Handbook
Recent
Developments in
Analysis of Crack
Propagation and
Fracture of
Practical Materials

The boundary element method is an extremely versatile and powerful tool of computational mechanics which

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has already become a popular alternative to the well established finite element method. This book presents a comprehensive and up-to-date treatise on the boundary element method (BEM) in its

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applications to
various fields of
continuum
mechanics such
as: elastostatics,
elastodynamics,
thermoelasticity,
micropolar
elasticity,
elastoplasticity,
viscoelasticity,
theory of plates
and stress

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analysis by hybrid methods. The fundamental solution of governing differential equations, integral representations of the displacement and temperature fields, regularized

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integral representations of the stress field and heat flux, boundary integral equations and boundary integro-differential equations are derived. Besides the mathematical foundations of the boundary integral

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method, the book deals with practical applications of this method. Most of the applications concentrate mainly on the computational problems of fracture mechanics. The

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method has been found to be very efficient in stress-intensity factor computations. Also included are developments made by the authors in the boundary integral formulation of thermoelasticity, micropolar

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elasticity,
viscoelasticity,
plate theory,
hybrid method in
elasticity and
solution of crack
problems. The
solution of
boundary-value
problems of
thermoelasticity
and micropolar
thermoelasticity

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is formulated for the first time as the solution of pure boundary problems. A new unified formulation of general crack problems is presented by integro-differential equations.

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Structural analysis is the corner stone of civil engineering and all students must obtain a thorough understanding of the techniques available to analyse and predict stress in any structure.

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Analysis Of Cracks Handbook

The new edition of this popular textbook provides the student with a comprehensive introduction to all types of structural and stress analysis, starting from an explanation of the basic principles of statics, normal

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and shear force
and bending
moments and
torsion. Building
on the success of
the first edition,
new material on
structural
dynamics and
finite element
method has been
included. Virtually
no prior

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knowledge of structures is assumed and students requiring an accessible and comprehensive insight into stress analysis will find no better book available.

Provides a comprehensive overview of the

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subject providing
an invaluable
resource to
undergraduate
civil engineers
and others new to
the subject

Includes
numerous worked
examples and
problems to aide
in the learning
process and

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develop
knowledge and
skills Ideal for
classroom and
training course
usage providing
relevant
pedagogy
Structural
Integrity of
Fasteners
An Introduction
Fundamentals of

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Fracture
Mechanics
Handbook of
Crack Opening
Data

The purpose of this Handbook is to provide a review of the knowledge and experiences in the field of fatigue fracture mechanics. It is well-known that

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engineering structures can fail due to cyclic loading. For instance, a cyclically time-varying loading reduces the structure strength and can provoke a fatigue failure consisting of three stages: (a) crack initiation (b) crack propagation and (c) catastrophic failure.

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Cracks Handbook

Since last century many scientists have tried to understand the reasons for the above-mentioned failures and how to prevent them. This Handbook contains valuable contributions from leading experts within the international scientific community and covers

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Cracks Handbook
many of the important
problems associated
with the fatigue
phenomena in civil,
mechanical and
nuclear engineering.

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