



# The Geometry of Physics: An Introduction

By Theodore Frankel

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## The Geometry of Physics: An Introduction By Theodore Frankel

This book provides a working knowledge of those parts of exterior differential forms, differential geometry, algebraic and differential topology, Lie groups, vector bundles, and Chern forms that are helpful for a deeper understanding of both classical and modern physics and engineering. It is ideal for graduate and advanced undergraduate students of physics, engineering or mathematics as a course text or for self study.

A main addition introduced in this Third Edition is the inclusion of an Overview, which can be read before starting the text. This appears at the beginning of the text, before Chapter 1. Many of the geometric concepts developed in the text are previewed here and these are illustrated by their applications to a single extended problem in engineering, namely the study of the Cauchy stresses created by a small twist of an elastic cylindrical rod about its axis.

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## **Editorial Review**

### Review

"It contains a wealth of interesting material for both the beginning and the advanced levels. The writing may feel informal but it is precise - a masterful exposition. Users of this "introduction" will be well prepared for further study of differential geometry and its use in physics and engineering.

As did earlier editions, this third edition will continue to promote the language with which mathematicians and scientists can communicate."

Jay P. Fillmore, University of California, San Diego for SIAM Review

### About the Author

Theodore Frankel received his PhD from the University of California, Berkeley. He is currently Emeritus Professor of Mathematics at the University of California, San Diego.

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