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Twistor Geometry And Field Theory (Cambridge Monographs On Mathematical Physics)

Twistor Geometry and Field Theory

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CAMBRIDGE MONOGRAPHS ON MATHEMATICAL PHYSICS
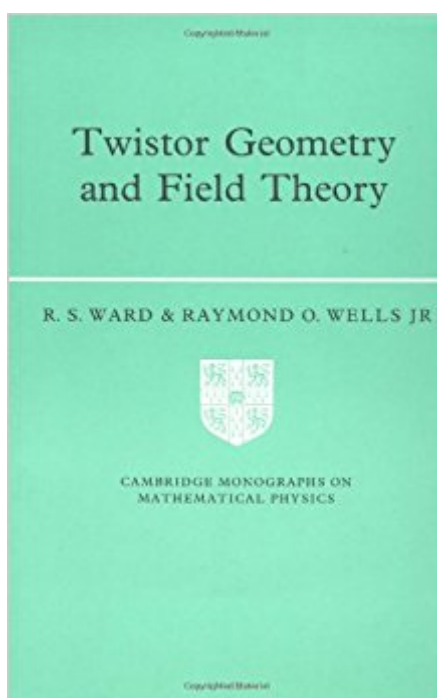
Synopsis

This book deals with the twistor treatment of certain linear and non-linear partial differential equations in mathematical physics. The description in terms of twistors involves algebraic and differential geometry, and several complex variables, and results in a different kind of setting that gives a new perspective on the properties of space-time and field theories. The book is designed to be used by mathematicians and physicists and so the authors have made it reasonably self-contained. The first part contains a development of the necessary mathematical background. In the second part, Yang-Mills fields and gravitational fields (the basic fields of contemporary physics) are described at the classical level. In the final part, the mathematics and physics are married to solve a number of field-theoretical problems.

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Customer Reviews

"... skillfully written. It will serve as a relatively accessible introduction to twistor theory for many readers who have not studied the subject before. Others will find it useful as a refresher and as a source of many valuable insights." Nature

If one is beginning to probe the intricacies of Twistor Theory, after an elementary introduction from Roger Penrose, one should own, read and study this volume.

From the mathematical point of view, this is an enjoyable read; it could even serve as a first exposure to algebraic topology.It is without question that Penrose's remarkable insights have come a long way in helping physicists foster new mathematical ideas, and put them on solid footing; and this is what the authors have set out to do. It is written in a very clear and lucid style, and it is the most comprehensive expository work in mathematical physics that I have seen in a long time. -A

I'm another one of the "total idiots" physicists. Unfortunately, I wasn't so lucky with the book. While I find here and there a few pages that I can understand without too much stress, there are other parts that caused me to abort reading - symbol stack overflow. Why do I get the impression that others here may rate this as a five star book simply to express their (probably well deserved) pride to have understood some of it? It's more than just a little difficult to read this book. They call this an introduction?

This is an extremely well written book. Couldn't be more clear. The authors derserve an AMS award for clarity of exposition. They even explain to physicists (read mathematical idiots) what a sheaf cohomolgy is. Hats raised to their efforts.

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