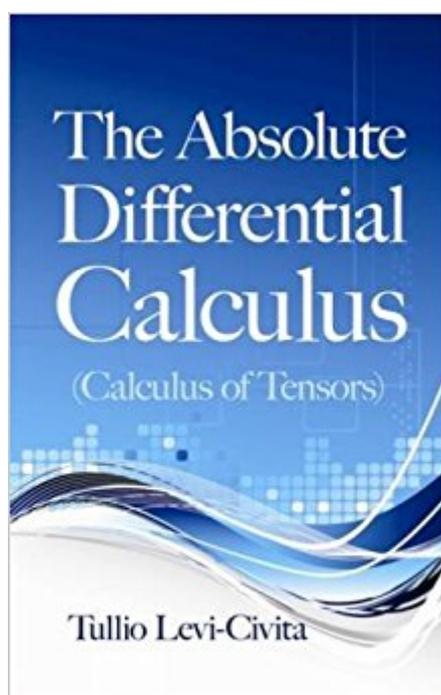


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The Absolute Differential Calculus (Calculus Of Tensors) (Dover Books On Mathematics)



Synopsis

Written by a towering figure of twentieth-century mathematics, this classic examines the mathematical background necessary for a grasp of relativity theory. Tullio Levi-Civita provides a thorough treatment of the introductory theories that form the basis for discussions of fundamental quadratic forms and absolute differential calculus, and he further explores physical applications. Part one opens with considerations of functional determinants and matrices, advancing to systems of total differential equations, linear partial differential equations, algebraic foundations, and a geometrical introduction to theory. The second part addresses covariant differentiation, curvature-related Riemann's symbols and properties, differential quadratic forms of classes zero and one, and intrinsic geometry. The final section focuses on physical applications, covering gravitational equations and general relativity.

Book Information

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Customer Reviews

A must have for all physics majors. Excellent outside source for mechanics, especially upper-division.

Not quite a page-turner, but this book presents good applications of tensor math. Sometimes difficult to follow, the book omits many "assumed" steps. However, a fine escape into the world of absolute differential calculus.

This book constitutes the history of Absolute Differential Calculus, born from the cooperation from Albert Einstein and Tullio Levi Civita. It also keeps an account on what Gregorio Ricci Curbastro had previously established on Tensors. I think it's a wonderful occasion, to study from the original papers of the authors of a theory, though they are generally somehow obscure, with respect to textbooks. This is definitely a great book.

This is the tough math you would like to have mastered in college. I am slowly working through this to try to stretch myself. It is slow going and demands a lot from the reader -- at least for me.

The challenge of my mind is here.

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