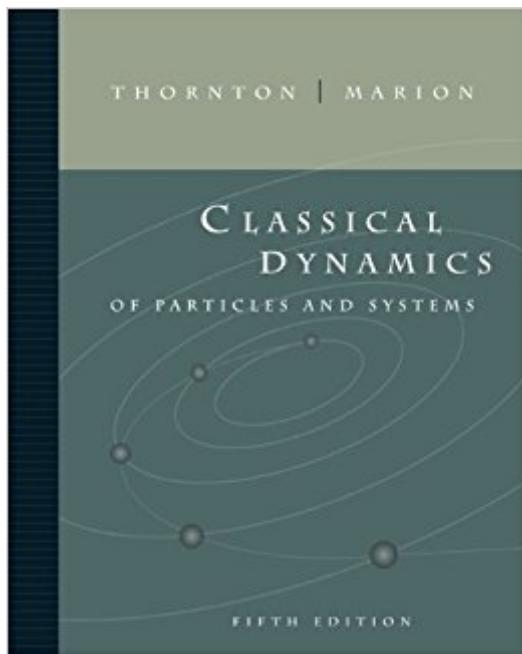


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Classical Dynamics Of Particles And Systems



Synopsis

This best-selling classical mechanics text, written for the advanced undergraduate one- or two-semester course, provides a complete account of the classical mechanics of particles, systems of particles, and rigid bodies. Vector calculus is used extensively to explore topics. The Lagrangian formulation of mechanics is introduced early to show its powerful problem solving ability.. Modern notation and terminology are used throughout in support of the text's objective: to facilitate students' transition to advanced physics and the mathematical formalism needed for the quantum theory of physics. CLASSICAL DYNAMICS OF PARTICLES AND SYSTEMS can easily be used for a one- or two-semester course, depending on the instructor's choice of topics.

Book Information

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Customer Reviews

Below the dashed line is a 5 star review of this book that I wrote 10 years ago. It has been 19 years since I first used this book in college. Over the past couple years I began teaching AP Physics C and it's become increasingly clear that this book is either a pedagogical mess or plagiarized from other texts. First it's important to say this, if you're interested in learning Newtonian mechanics buy Introduction to Mechanics by Kleppner and Kolenkow (K&K). The text is a masterpiece and should be required reading and its problems are outstanding, (My AP C students use it for the Mechanics portion of the class). If you want to learn about Hamiltonian Mechanics, use Goldstein, because Marion and Thornton (M&T) just borrow from it anyhow. The notation in Marion and Thornton tends to get cluttered for no reason whatsoever, for instance read the derivation of the accelerating Atwood. Overall you do not get much of an appreciation for inertial reference frames from the text.

Comparing it to the treatment that K&K gives and you quickly realize how inadequate (M&T) is. Another example is rotational dynamics. In many ways I feel like by using M&T for all those years I constrained my understanding of the subject. Now I am not saying that it is useless, I still use it as a reference but it should not be used for Intermediate Mechanics.-----I took a mechanics course 9 years ago with an earlier edition, finished undergrad and left the study of physics. Recently I bought a new edition and I have just finished self studying this book and I felt that it's quite excellent. The problems are challenging but that is precisely what I expected.

I am using this book to study for a graduate-level physics assessment exam, so I am not going through it in the natural order of the chapters. I will update this review once I have finished going through the book. From what I've read so far, this is my new favorite mechanics book. In general, I have not been satisfied with any of the mechanics textbooks I've read so far, with my previous favorite being the Landau/Lifshitz mechanics text. As an undergraduate, I used lecture notes my professor wrote supplemented with Taylor's Classical Mechanics. I thought Taylor's book was very accessible, but was disappointed that it did not cover the material on a deeper level. However, the worked out examples were very helpful. In my Master's program, I used Goldstein's Classical Mechanics, and supplemented it with the Landau/Lifshitz book. Goldstein covered the material in more depth, but I felt like I was understanding the mathematics and missing out on some of the bigger connections between the mathematics and the physics. I also felt like I understood the material in the narrow context it was used, but that was about it. Goldstein also does not have very many worked out examples throughout the text, and that made learning some of the topics difficult. Landau/Lifshitz book provided me with much more insight into what was physically going on in these systems, and the repercussions of the math behind the systems. The L/L book is very terse, which can be both an advantage and disadvantage at times. The worked out problems usually do not include all of the steps, but enough is provided such that a student could write out the complete derivation on their own. So far I have really enjoyed Thornton & Marion.

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