

A New Textbook for Graduate Classical Electrodynamics

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The 2006 AAPT-APS task force on graduate education reported that 76 of 80 physics departments surveyed teach a required first-year course using the 3rd edition of J.D. Jackson's *Classical Electrodynamics*. This popularity may be compared with the mixed opinion reflected by the 104 reviews currently posted at Amazon.com: 5 stars (38), 4 stars (20), 3 stars (20), 2 stars (8), 1 star (18). A similar mixed message comes from the *American Journal of Physics* where the reviewer of the 3rd edition sees "no reason not to consider Jackson the text of choice for the next millennium" yet complains that "over and over again one discovers that between one equation and another, up to a whole page of handwritten details needs to be interpolated".

At Georgia Tech, four instructors over nearly ten years have used an evolving set of lecture notes designed to provide an alternative to Jackson. The guiding principle was to provide a resource for students to deepen their understanding of electrodynamics as a subject of physics rather than as a topic in applied mathematics. To that end, the presentation routinely combines the necessary mathematics with qualitative arguments of the sort familiar to working physicists. The arrangement of material and the choices made for topics, examples, and applications are drawn from all subfields of physics. This poster illustrates all these points using the Table of Contents and text and examples drawn from the resulting new textbook, *Modern Electrodynamics* (Cambridge University Press, 2013).