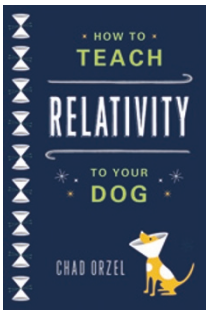
Canine challenge



How to Teach Relativity to Your Dog

by Chad Orzel

BASIC BOOKS: 2012. 368 PP. $16.99

Despite a slew of popular books on science, it is a brave writer that tries to pen one on relativity: it is to Chad Orzel's credit that he has made a brave attempt. His 'unique selling point' is an unusual version of the Socratic dialogue, choosing his dog Emmy as his incredibly astute stooge.

Orzel has used this rather odd device previously in *How to Teach Physics to Your Dog* (published in 2010, and which I confess I have not read). The different worldview of a dog is used less as a metaphor than as an opportunity for mild humour, and rather begs the question of who the book is aimed at. The young will find the physics content and explanations very challenging; older readers may find the scenario forced. I for one found the quirky exchanges with his Yeats-quoting dog distractingly twee for the first few chapters, and the firmly American idioms a little grating. (The very useful glossary at the end might benefit from adding a few more entries — such as 'Kibble', which I now realize is dog food and not the British theorist!) I fear the conceit may put off more readers than it attracts.

The book itself gives a solid description of the basis of special relativity, but I feel it rather over-reaches itself when it introduces Minkowski diagrams. This section and others might have benefited from clearer and more complete labelling of the diagrams (it may be an issue with the proof copy, but he would loose marks in any of our undergraduate courses for the frequent absence of labels on axes). However, what struck me most was that I wished for an e-book version of the discussion. If a picture paints a thousand words, a moving graphic could add clarity and understanding while shortening the text. I offer this suggestion to the author and publishers at no fee!

Where the book really takes off is with the discussion of mass–energy equivalence and the general theory of relativity. Declaring an interest as a member of the ATLAS collaboration at CERN, I can hardly complain at the digression from mass–energy equivalence into particle physics and the Large Hadron Collider, even if the author seems to think the subject is over-exposed (guilty as charged!). With general relativity — perhaps realizing that a simple and complete explanation is not possible — the text is freed to give a good conceptual understanding of its principles and applications, and captures much of the excitement of black holes, cosmology and unified theories.

In a sense, the author's timing is unfortunate. The curious results on superluminal neutrinos reported from the OPERA (Oscillation Project with Emulsion tRacking Apparatus) experiment may pose a challenge to the basic assumptions of relativity, which can only be acknowledged in a footnote in this edition. By a future edition, other experiments will have made comparable measurements and the book may require a significant re-write. But it might have been good, even now, to suggest some of the ways in which the OPERA results may hold and still allow relativity to stand — in the discussion of extra dimensions, for example.

In all, this is a book that has a daunting start, but becomes much more engaging and readable for a general audience in the second half. I suggest people who baulk at the idea of a talking dog but are nevertheless interested in the broad sweep of one of the two great theories of the twentieth and early twenty-first centuries should give this book a chance.

After all, every dog has its day. ❐

REVIEWED BY ROGER JONES

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ON OUR BOOKSHELF

How to Succeed as a Scientist: From Postdoc to Professor

by Barbara J. Gabrys and Jane A. Langdale

CAMBRIDGE UNIV. PRESS: 2011. 232 PP. £55

Based on a series of workshops they devised for postdocs at the University of Oxford, Gabrys and Langdale present chapters on how, as a new starter, to manage your time, communicate your research and handle criticism. They then offer guidance on how to master the grant writing, project management, group building and people management expected of a mature researcher.

Who's #1?: The Science of Rating and Ranking

by Amy N. Langville and Carl D. Meyer

PRINCETON UNIV. PRESS: 2012. 266 PP. $29.95/£19.95

Applied mathematicians Langville and Meyer follow up their 2006 work, *Google's PageRank and Beyond: The Science of Search Engine Rankings* (reviewed in *Nature Physics*, http://go.nature.com/XX9Gy4), with this thorough exploration of the methods and applications of ranking for an audience ranging from computer scientists and engineers to high-school teachers to "people interested in wagering on just about anything".