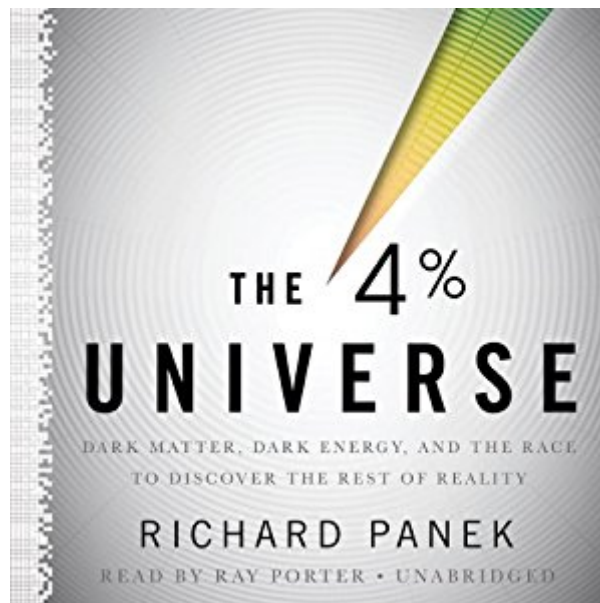




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The 4 Percent Universe: Dark Matter, Dark Energy, And The Race To Discover The Rest Of Reality



Synopsis

Over the past few decades, a handful of scientists have been racing to explain a disturbing aspect of our universe: only four percent of it consists of the matter that makes up you, me, our books, and every star and planet. The rest is completely unknown. Richard Panek tells the dramatic story of the quest to find this "dark" matter and an even more bizarre substance called "dark energy". This is perhaps the greatest mystery in all of science, and solving it will bring fame, funding, and certainly a Nobel Prize. Based on in-depth reporting and interviews with the major players—from Berkeley's feisty, excitable Saul Perlmutter and Harvard's witty but exacting Robert Kirshner to the doyenne of astronomy, Vera Rubin—the book offers an intimate portrait of the bitter rivalries and fruitful collaborations, the eureka moments and blind alleys, that have fueled their search, redefined science, and reinvented the universe. The stakes couldn't be higher. Our view of the cosmos is profoundly wrong, and Copernicus was only the beginning: not just Earth, but all common matter is a marginal part of existence. Panek's fast-paced narrative, filled with original reporting and behind-the-scenes details, brings this epic story to life for the very first time.

Book Information

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Customer Reviews

I really enjoyed this book, but you should go into it knowing that it's not a "hard science" book. Instead, what this book does is tells the story of how the science of dark matter/dark energy has progress up to this point. For each component it weaves a story of the scientists and the science, letting you glimpse at how they got into the field and why they stayed and struggled for so long to

gather the data which would push the field a tiny bit further as well as looking at what those struggles were. Not only does it give a nice overview of where the dark matter and dark energy field is today, but it provides an important reminder that science isn't set in stone and that it isn't always easy. If you're interested in the story check this book out, you won't be disappointed. If you're interested in the science, better look elsewhere.

With amazement I read *The 4 Percent Universe -- Dark matter, dark energy and the race to discover the rest of reality*, a non-fiction book by science writer, Rickard Panek. He covers the race to discover reality between a group of physicists and astronomers, which in the process birthed the science of cosmology. Read the epilogue first. In there on page 242 Panek says, "In early 2010 . . . the results arrived bearing the latest refinements of the numbers that define our universe. It was 13.75 billion years old . . . it was flat, consisting of 72.8 percent dark energy, 22.7 percent dark matter, and 4.56 percent baryonic matter (the stuff of us) -- an exquisitely precise accounting of the depth of our ignorance. The astronomers who set out to write the final chapter in the history of the universe had to content themselves instead with a more modest conclusion: to be continued. Isn't it amazing? We don't know what dark energy and dark matter are, and they compose most of our universe. Of course, we now have to think about parallel universes and multi-verses. Brian Greene's new book *The Hidden Reality* addresses these, and I recommend following up with it.

This mind blowing book is as much history as it is science. Tracing the events and discoveries of the 20th century leading up to the revolutionary idea that what we see around us, the visible universe, is only a small part of the big picture--only 4% to be exact. With each advance in observational astronomy science has expanded its horizon, from a Sun centered Solar System to the Expanding Universe and beyond. Although this book is written for the interested layperson a good background in astronomy and physics reading will certainly help you get through Panek's complex narrative. The history leading up to the Dark Matter/Energy hypothesis involves a host of different astronomers and physicist that sometimes bumped heads and sometimes worked together to achieve their goals. In some respects that history starts with Bell Lab's discovery of the CMB in 1965. But on the other hand the full story may go back to Einstein's Cosmological Constant (λ). Like String Theory this scientific investigation poses more questions than it answers. What exactly is Dark Matter or Dark Energy? On Dark Matter there are a few sub-atomic particles that may be contenders but no one knows for sure. On Dark Energy--no one has a clue. If

everything we see around us is only 4%, then what about the other 96%. So far the break down is 23% for DM and 73% for DE. Is the universe expanding at a constant rate? Or, is it slowing down (because of DM) or speeding up (because of DE)? This book can't answer those questions but it can fill you in on the scientific quest for these "secrets of the universe" and introduce you to the many scientist who spend their lives looking for answers and only finding more questions. For me this was not an easy book but it was an engrossing one and well worth the time and money I spent on it. I had no technical or formatting problems with this Kindle edition. LastRanger

Extraordinarily well documented history of the concepts of Dark Matter and Dark Energy and the cosmologists who developed the theories, proofs, and publications over generations. But if you want a quicker view of what constitutes the 96% of the Universe we can't see, you would probably be better off finding a different book. This covers the trials, tribulations, in-fighting, hassles, problems, contortions, and exasperations that all serious competing researchers in any field suffer in order to make great contributions to human understanding. It's actually more about the people and the processes than the results of their efforts.

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