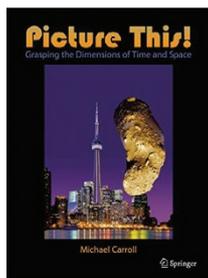


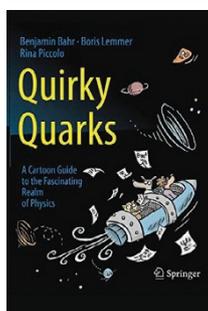
# An entertaining view of science



**Picture This!**  
Grasping the  
Dimensions of Time  
and Space

By Michael Carroll

SPRINGER: 2016.  
205PP. £19.50



**Quirky Quarks:**  
A Cartoon Guide  
to the Fascinating  
Realm of Physics

By Benjamin Bahr,  
Boris Lemmer and  
Rina Piccolo

SPRINGER: 2016.  
319PP. £19.99

It's okay to enjoy a sport without being an athlete. It's also fine to have an appreciation for science without being an expert scientist. This appears to be the take of both *Picture This! Grasping the Dimensions of Time and Space* and *Quirky Quarks: A Cartoon Guide to the Fascinating Realm of Physics*. Although both books are primarily aimed at a general audience, they each have a unique and interesting approach that relies on imagery.

In *Picture This!* space artist and science writer Michael Carroll takes on astronomy. Things in space come in many different sizes. There are comets, planets and galaxies. But how do you really grasp the size of these bodies? It's really difficult to get a feeling for the scale of an asteroid by just looking at a picture. Michael Carroll's solution is to create unusual images of astronomical objects juxtaposed with more familiar terrestrial objects, such as landmark buildings. Take for instance the European Space Agency's Rosetta mission, which landed a spacecraft on comet 67P/Churyumov–Gerasimenko. The images of the comet made the headlines, but it is hard to judge the actual size of this comet nucleus. Carroll includes a scale image of comet 67P next to Mount Fuji (pictured) so that one can appreciate its size.

To get a feeling for the size of Mercury, the image of the planet is placed next to a map of Texas. A visual comparison of the atmospheres of different planets displays each one next to the Earth's in a line-up



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revealing how far the atmospheres of some of the gas planets extend. Moving on to stars and galaxies, our Sun and a larger star such as Betelgeuse become the reference. But for objects larger than our Solar System it's fairly difficult to include correctly scaled objects: these things are just too big. If you think *Picture This!* is just a book with interesting images, you would be wrong. Carroll uses the scale drawings as a set-up for exciting astronomy stories.

The second book, *Quirky Quarks*, also aimed at the general public, thrives on the physics explanations given by two physicists — Benjamin Bahr and Boris Lemmer — alongside the cartoons of Rina Piccolo. The cartoons in *Quirky Quarks* are creative and entertaining images that illustrate some aspect of physics. Most scientists would probably find them enjoyable. However, if you don't really 'get it', the cartoons are accompanied by a narrative created to give an insight into the underlying physics. An example of an engaging story is the discovery of exoplanets, which ties together different concepts in a compelling account that is complemented by well-drawn illustrations.

But what about the physics? Of course this book isn't a full blown module on undergraduate physics. Instead, it is more like a flight simulator on easy mode. You don't have to worry about all of the flight controls, but you still encounter some of the cool physics. And that's not easy to design, but the authors do a fine job. As for the content, the authors pretty much jump right into the topics everyone wants to talk about, including quantum mechanics and black holes. The book even addresses the popular question 'what would happen to a human in the vacuum of space without a spacesuit?'. Without being an expert on this topic, their answer seems thoughtful and logical as well as entertaining.

Overall, both books are great for science enthusiasts and those interested in the general ideas of science without overwhelming the reader with the details. And as a scientist, I enjoyed both the scale drawings in *Picture This!* and the cartoons in *Quirky Quarks*. □

REVIEWED BY RHETT ALLAIN

Rhett Allain is an Associate Professor of Physics at Southeastern Louisiana University and the author of Wired magazine's science blog *Dot Physics*.