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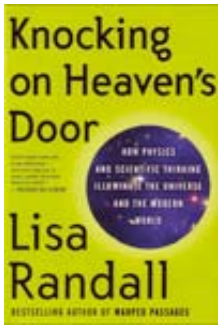
Knocking on Heaven's Door: How Physics and Scientific Thinking Illuminate the Universe and the Modern World

By Lisa Randall

HarperCollins

Hardback: $29.99

E-book: $14.99



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Knocking on Heaven's Door (http://images.iop.org/objects/ccr/cern/51/10/25/CCboo4_10_11.jpg)

Lisa Randall's new book **Knocking on Heaven's Door** has an interesting choreography. It reads almost as though it started out as a conversation with the author at, say, a dinner party that turned into a tour of CERN and the LHC. With many personal references and anecdotes thrown in, it certainly isn't your standard popular-science volume about the LHC and the current state of particle physics.

For example, Randall, well known role-model theorist and media darling (this is meant in a good way), doesn't start with the theory. Instead, she ends with it, explaining the open questions of the Higgs or missing antimatter, delving deeply into string theory and dark matter before she closes with an aside on theoretical methods and the notions of science as a quest, scientific genius and patience, thus giving a nice insight into the proverbial question: "What do theorists do all day?"

So why does it read as though it started out as a dinner conversation? Because the first quarter of the book is dedicated to the explanation of what science is all about, i.e. that is it guided by evidence, proof and experiment, and that these sometimes lead to readjustments in theories but rarely to complete revolutions. Doesn't this sound like a question somebody might ask at a dinner table? Or the famous question of how science and religion can survive side by side, a topic that is

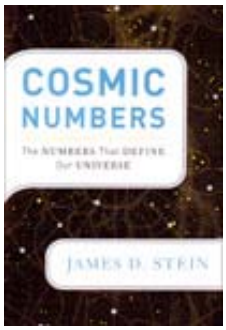
hinted at in the book's title.

After an evening of explanations and justification, the next natural step would be to invite the interrogator for a tour, which is what follows. Randall gives a quick introduction to CERN and a longer one on the LHC, and then while making her way to detector technologies there's an aside on black holes, cost-benefit analysis and ecological arguments. The grand finale of the tour takes place in the cafeteria, where the really interested visitors are treated to the whole state of theoretical thinking.

Knocking on Heaven's Door may not be the most stringent introduction to particle physics and its problems today, but it offers a fascinating insight into the world of science and manages to get across the excitement that the whole field, theorists and experimentalists alike, feels at the brink of discoveries to come from the LHC.

• *Barbara Warmbein, DESY*.

Cosmic Numbers: The Numbers That Define Our Universe
By James D Stein
Basic Books
Hardback: £17.99 $25



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Cosmic Numbers (http://images.iop.org/objects/ccr/cern/51/10/25/CCboo5_10_11.jpg)

Numbers are much better than words at conveying the immensity of our universe and the smallness of its components. We appear to sit uneasily on a fragile perch somewhere in the middle, using mighty telescopes to look outwards and hi-tech microscope devices to peer inwards. However, to make them digestible, these huge numbers still need words, imagination and humility.

Martin Rees' commendable book **Just Six Numbers: The deep forces that shape the Universe** examined a selection of numbers, mostly large ones, which miraculously ensure that