

MITOCW | L0.4 Introduction to Nuclear and Particle Physics: Literature

PROFESSOR: Hello, welcome again to 8701. In this short video, I'll talk about the books we are using and the literature we are using in this class. So let's dive right into.

There's a sequence of textbooks I go back to when I prepare the material for the class. You know, the one which I use in order to derive the outline or the schedule for the class is *Introduction to High Energy Physics* by Perkins. But again, I use material from a sequence of textbooks and reading material for you guys as well.

Nuclear physics is not covered in Perkins, so we have here Samuel Wong's book *Introductory Nuclear Physics*. We spend about two weeks talking about nuclear physics towards the second part of the class. And a couple of basics, we talk about the introductory material really in the sequence.

A book I like a lot is the *Introduction to Elementary Particles* by Griffiths. And you see me using examples out of that book a bit. Then on the nuclear physics side there is Kenneth Krane. It's an MIT book and a book which has been put together by MIT faculty and research scientists. And then there's *Techniques for Nuclear and Particle Physics* by Leo, which I like a lot.

It's a little bit of an older book, but it goes into some of the technical details and material details which are important to understand how we build detectors. And then a more recent book is *Modern Particle Physics* by Mark Thomson. It dives right into particle physics, the energy frontier. And it's really nice to read. It's a modern book. And it's easy to read and comprehend.

I recommend to have a look at the review articles by the particle data group. They are really concise articles which are for beginners or for introductory level maybe a little bit difficult. But as we go through the material in this class, you should be able to take those articles to review certain sections of this class. For example, QCD, or electroweak interactions, the Higgs mechanism. And while you do this, you also learn one of the latest results and measurement in this area.

I'll be posting a set of papers as we go through the class. And you'll see in the course organization that I'll ask you to actually summarize some of those papers in our recitation section. So those are going to be important papers, for example, describing the experiment which was used to measure parity violation, or the paper on the Higgs discovery.

That's it for literature. Please as always go ahead and ask me questions. You know this. You know if you Google particle physics or nuclear physics, you will find tons of literature available on as many good books. And you might find a different one from this listing which suits your appetite for reading and learning.