



# Promo Vlog

## Understanding Solid State Physics 2<sup>nd</sup> edition

### Audio transcript

(Caption: Meet the Author)

Hello I'm Dr Sharon Ann Holgate the author of Understanding Solid State Physics, and I just wanted to explain a little bit about why I wrote a second edition of this book. It seems quite astonishing the amount of progress that we've had in terms of mobile technology, just to pick one example, in the 10 years since I wrote the first edition. I mean I just can't imagine a world—and I'm sure most of you can't either—without tablets, smartphones, and even to be talking to these things rather than actually using fingers to input is quite an astonishing development. I mean who would've thought that I'd be asking what's on at the local cinema or finding out what the weather was by talking to a voice activated digital assistant! And of course these devices wouldn't be possible without all the advances in semiconductor physics that there have been in the last few decades.

(Caption: Other advances since writing the 1st edition)

One of the most significant developments in the field of solid state physics has been the discovery of graphene. The potentials for this material are absolutely enormous and we're only just starting to see applications. So it will be fascinating to see what happens with this over the next 10 years.

(Caption: Chapter contents)

I'm retaining the overall structure of the book. So as before we begin with talking about crystal structures, then move onto amorphous structures and glasses. And then Chapter 4 has got a slightly different focus to the first edition. It's talking more about why materials are chosen for particular applications—because it isn't always a given—so this hopefully gives a bit of an idea of how solid-state physicists work in reality when they're actually trying to solve real-world problems. Chapter 5 is still talking about diffraction and thermal conductivity. Chapter 6 talks about electrical conduction, and in Chapter 7 we look at semiconductor devices, and finally Chapter 8 is all about magnetism.

(Caption: New features)

I've updated some of the applications mentioned and I've also got some completely new features. You'll find on the associated website there's some video content, and also some audio content, which I've created which hopefully will help explain some of the points in the book a bit more, and also assist a little bit when it comes to revision time. I've also been using my trusty camera here to record a few more video quiz questions which you'll also find on the website if you'd like to test your knowledge of solid state physics.

(Caption: Other features)

I've listened to feedback on the first edition of my book and so I've retained some of the popular features like the journalistic boxes and the worked examples.

(Caption: Mathematics content)

So for any of you like me who are not mad keen on mathematics, rest assured there's not loads of it in this book. There's a little bit more than in the first one, but I've made sure that everywhere that I've included more mathematics I've broken it down into what will hopefully be some nice, easy-to-follow steps.

I'm still absolutely fascinated by solid state physics 10 years on from writing the first book. It's just used in so many different areas, I find it so interesting. I really hope that you enjoy reading this book and I hope also that I've just helped make this subject—which can be quite challenging—just a little bit more understandable. Thank you for watching.