

Fun Reading for IB Physicists

IB Physics A

- **Oscillations, Waves & Optics**
 - Blundell & Blundell Chapter 31 (*pp.* 354) contains a useful piece about sound waves. ***
- **Quantum Physics**
 - Griffiths is an awesome book, which is standard in most American universities. I have no idea why it's not used in the UK.
- **Theoretical Methods**
 - Blundell & Blundell *pp.* 371 has a more rigorous treatment of Johnson noise than that given in the lecture notes. Requires some Physics B electromagnetism, though... **
- **Concepts in Condensed Matter**
 - Blundell & Blundell Chapter 24 (*pp.* 263) has a good explanation of Debye theory. ***
 - Blundell & Blundell *pp.* 79 – 81 has a good treatment of Thermal Conductivity. ***

IA Physics B

- **Electromagnetism**
 - Griffiths is a wonderful book! Covers everything in the course (and more) in a very readable style... ****
 - Steve Gull's old notes on electromagnetism are useful as "flash cards" regarding important results – but not really good in terms of getting any understanding (they're only slides after all).
<http://www.mrao.cam.ac.uk/~steve/electromagnetism/> *
- **Thermodynamics**
 - Blundell & Blundell is an outstanding book in every possible way. Easy to read, humorous, mathematically rigorous and self-explanatory. Covers everything in the course and more in glorious detail. Highly recommended. ****

- **Classical Dynamics**

- *Frames of reference*
 - Morin, Chapter 10 (*pp. 457*). ***
- *Orbits*
 - Morin, Chapter 7 (*pp. 281*) – requires some familiarity with Lagrangian mechanics (which is covered in Morin Chapter 6). **
- *Rigid Body Dynamics*
 - Morin, Chapters 8 and 9 (*pp. 309*). ***
 - Feynman, Chapter 31 Vol. 2 contains a reasonably understandable explanation of what the inertia ellipsoid is. ***
 - The Wikipedia article on Poinso't's Construction was also very useful, and also explains what the inertia ellipsoid is. ***
- *Normal Modes*
 - Open University Course MST209 Unit 18 provides an *excellent* introduction. Probably quite hard to obtain, and perhaps slightly basic. **
 - Riley Hobson and Bence, Chapter 9 (*pp. 316*) is also quite good, but perhaps slightly too mathematically advanced. **
- *Elasticity*
 - Feynman, Chapter 38 Vol. 2 almost exactly mirrors the course, and is crystal-clear, lucid, and incredibly easy to follow. ****
 - Feynman, Chapter 39 Vol. 2 also contains material useful for the course. Doesn't follow the course as well, though, and requires some knowledge from other chapters of the Feynman Lectures. ***
- *Fluid Dynamics*
 - Feynman, Chapter 40 and 41 Vol. 2 are both excellent and mirror the course well. The only problem is that they miss out a significant amount of material covered in the lectures. ***
 - Blundell & Blundell, *pp 78* contains an easy-to-read treatment of Couette Flow in the case of two concentric cylinders. ***
 - Blundell & Blundell, Chapter 32 (*pp. 361*) gives a treatment of Shock waves. Somewhat more advanced than in our course, but very good nevertheless. **

- Blundell & Blundell, Chapter 9 (*pp.* 74 – 78) offer a wonderful insight into *what* viscosity is at the molecular level. It's a lot of fun to read, but it's not covered in the course. *