

Litteraturlista för ÄFYD14, Fysik 4: Modern fysik med fysikdidaktik, 30 högskolepoäng

Delkursen Atom- och molekylfysik

These cover most of the course material. We recommend either Foot or Thorne et al.:

Foot C. J., *Atomic Physics*, Oxford University Press

Thorne A., Litzén U. and Johansson S., *Spectrophysics: Principles and Applications*, Springer Verlag.

Haken H. and Wolf H. C., *The Physics of Atoms and Quanta*, Springer Verlag (*The Physics of Atoms and Quanta* is available as an e-book from the university library)

This is a book on advanced level (Masters) but could be used as reference literature:

Demtröder W., *Atoms, Molecules and Photons*, Springer Verlag (Molecules and Photons is available as an e-book from the university library)

Bransden B.H. and Joachain C.J., *Physics of Atoms and Molecules*.

Quantum mechanics

Ohlén, G, *Phenomena of the quantum world*

Cohen-Tannoudji C., Diu B., and Laloë F., *Quantum Mechanics*

Delkursen Kärnfysik

[John S. Lilley, Nuclear Physics: Principles and Applications \(Wiley\)*](#)

Lecture notes and slides.

Laboratory manuals.

Problem sheets.

*or any other book with a similar title, covering the topics of the course. For instance, German-speaking students can consider T. Mayer-Kuckuk, *Kernphysik* (Teubner). The former course book was Kenneth S. Krane, *Introductory Nuclear Physics*, Wiley.

Further reading (societal aspects):

- Hedvig Hedqvist, *Kärlek och Kärnfysik*, Albert Bonniers förlag (mainly about Lise Meitner).
- Bengt Forkman, *Lise Meitner - en levnadsteckning*, Gidlunds förlag.
- Kid Chapman, *Superheavy - Making and Breaking the Periodic Table*, Bloomsbury.

Delkursen Partikelfysik, kosmologi och acceleratorer

B.R. Martin and G. Shaw, *Particle Physics*. Either the 3rd or the 4th edition can be used. The book can also be accessed online [here](#).

Delkursen Fysikdidaktik

Material tillhandahålls av läraren.

Studenterna kan i sina uppgifter behöva referera till den litteratur som de haft under de tidigare didaktikkurserna i ÄFYD11 och ÄFYD12 eller ÄFYD01 och ÄFYD02.