

1 General references

1. Easy introduction: an EPJST review paper on laser cooling and BEC:
<http://www-lpl.univ-paris13.fr/bec/BEC/Teaching/LesHouches2007.pdf>.
2. (in French) Claude Cohen-Tannoudji, cours au collège de France
<http://www.phys.ens.fr/cours/college-de-france/>
3. (in French) C. Cohen-Tannoudji, B. Diu, F. Laloë, *Mécanique quantique III*, EDP-CNRS Éditions, Collection Savoirs Actuels, 2017.
4. With a broad scope, an overview of all CCT's lectures at Collège de France: Cohen-Tannoudji and Guéry-Odelin, *Advances in atomic physics: an overview*, World Scientific, 2011. French version: *Avancées en physique atomique : du pompage optique aux gaz quantiques*, Hermann, 2016.
5. (in French) Lecture notes of Jean Dalibard:
http://www.phys.ens.fr/~dalibard/Notes_de_cours/DEA_atomes_froids_actuel.pdf
6. My own lecture notes at Les Houches on laser cooling:
http://www-lpl.univ-paris13.fr/bec/BEC/Teaching/lecture1_2012.pdf
http://www-lpl.univ-paris13.fr/bec/BEC/Teaching/lecture2_2012.pdf

2 Atom-light interaction, laser cooling and trapping

1. *Atom-Photon Interactions: Basic Processes and applications*, C. Cohen-Tannoudji, J. Dupont-Roc, and G. Grynberg, Wiley, 1992. French version: *Processus d'interaction entre photons et atomes*, EDP Sciences (2000).
2. *Laser cooling and trapping*, Harold Metcalf and Peter van der Straten, Springer, 1999.
3. *Atoms and molecules interacting with light*, Peter van der Straten and Harold Metcalf, Cambridge University Press, 2016 (also treats BEC).
4. More difficult: Cohen-Tannoudji's and Phillips' lectures in Les Houches, 1990 Summer School: *Atomic motion in laser light* and *Laser cooling, optical traps and optical molasses*. J. Dalibard, J.-M. Raimond, and J. Zinn-Justin, editors, *Fundamental systems in quantum optics, Les Houches session LIII, July 1990*, pages 1–164. Elsevier, 1992.
5. on dipole forces: the review paper by Grimm, Weidemüller and Ovchinnikov: *Optical dipole traps for neutral atoms*, Adv. At. Mol. Opt. Phys., 42:95–170, 2000. <http://arxiv.org/abs/physics/9902072>

3 Bose-Einstein condensation

1. A Bible: *Bose-Einstein condensation*, Sandro Stringari and Lev Pitaevskii, Oxford University Press (2003).
2. A shorter version of the Bible: *Theory of Bose-Einstein condensation in trapped gases*, Dalfovo, Giorgini, Pitaevskii and Stringari, Rev. Mod. Phys. **71**, 463–512 (1999); Preprint version: <http://arxiv.org/abs/cond-mat/9806038>
3. Varenna lecture notes: *Making, probing and understanding Bose-Einstein condensates*, W. Ketterle, D.S. Durfee, and D.M. Stamper-Kurn, in Bose-Einstein condensation in atomic gases, Proceedings of the International School of Physics "Enrico Fermi", Course CXL, edited by M. Inguscio, S. Stringari and C.E. Wieman (IOS Press, Amsterdam, 1999) pp. 67-176. <http://arxiv.org/abs/cond-mat/9904034>
4. Nobel lectures of Wieman and Cornell, and of Ketterle.