

ECE 656: Week 4 References

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To go a little deeper into the topic of carrier scattering in 3D semiconductors, three good starting points are:

Lino Reggiani, "General Theory," Chapter 2 in *Hot Electron Transport in Semiconductors*, vol. 58 of *Topics in Applied Physics*, Springer-Verlag, New York, 1985. (see Secs. 2.8 - 2.12)

Carlo Jacoboni and Paolo Lugli, *The Monte Carlo Method for Semiconductor Device Simulation*, Springer-Verlag, New York, 1989. (See Secs. 2.3 and 2.4).

B.K. Ridley, *Quantum Processes in Semiconductors*, 4th Ed. Clarendon Press, Oxford, UK, 1999. (See Chapters 3 and 4)

Ridley also has a nice discussion of energy and momentum conservation in electron-phonon scattering.

B.K. Ridley, *Quantum Processes in Semiconductors*, 4th Ed. Clarendon Press, Oxford, UK, 1999. (See Chapter 3, Sec. 2)

For a discussion of carrier scattering in quantum wells, see:

B.K. Ridley, *Electrons and Phonons in Semiconductor Multilayers*, Cambridge Univ. Press, Cambridge, UK, 1997. (See Chapters 8 and 9)

The treatment of electrons and phonons and electron-phonon scattering in quantum wells and quantum wires is treated by Stroscio and Dutta.

M.A. Stroscio and M. Dutta, *Phonons in Nanostructures*, Cambridge Univ. Press, Oxford, UK, 2001. (See Chapters 8 and 9)

For an introduction to phonon scattering, see Chapter 9, Sec. 9.4 in:

Mildred Dresselhaus, Gene Dresselhaus, Stephen B. Cronin, and Antonio Gomes Souza Filho, *Solid State Properties: From Bulk to Nano*, Springer-Verlag, Berlin, 2018.