

Material for Week 7

Physics 4488/6562: Statistical Mechanics

<http://www.physics.cornell.edu/sethna/teaching/562/>

Exercises due Fri. Mar 26

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NOTE: The prelim will be distributed this Friday, and will be due Monday March 29. The exercises this week are due this Friday, not Monday.

All exercises are from the second edition of the text: <http://pages.physics.cornell.edu/~sethna/StatMech/EntropyOrderParametersComplexity20.pdf>

Monday

In-class question: [7.3](#) *Phase-space units and the zero of entropy*

Wednesday

Read: Chapter 7, Sec. 7.6 (Black body radiation and Bose condensation), and Sec. (7.7) (Metals and the Fermi gas).

Pre-class question: [7.17](#) *Eigenstate thermalization*

In-class question: [7.22](#) *Light baryon superfluids*

Friday

Read: Prepare for prelim.

In-class question: [7.24](#) *Is sound a quasiparticle?*

Monday

Read: PRELIM DUE.

Exercises for everyone (4488 and 6562)

[7.1](#) *Ensembles and quantum statistics.* Don't be misled by the multiple choice format. You will likely need to do a complete solution to answer the questions

[7.11](#) *Phonons on a string.*

Exercises for Graduate Course (6562 only)

[7.4](#) *Does entropy increase in quantum systems?*

[7.25](#) *Quantum measurement and entropy.*