Material for Week 13
Physics 4488/6562: Statistical Mechanics
http://www.physics.cornell.edu/sethna/teaching/562/
Exercises due Mon. May 11
Last correction at April 27, 2020, 3:14 pm
©2018, James Sethna, all rights reserved

On Friday, we shall be doing simulations and listening to audio files. Please bring your laptops, tablets, or smart phones.

For Wednesday's pre-class question, do part (a) only. We'll do the other parts in class.

Monday
In-class question: 12.1 *Ising self-similarity*
In-class question: 12.15 *Hearing chaos*
In-class question: 12.14 *Crackling noises*
Wednesday
Read: Chapter 12, Sec. 12.1 (Universality)
Pre-class question: 12.7 *Renormalization-group trajectories*
In-class question: 12.7 *Renormalization-group trajectories*
Friday
Read: Chapter 12, Sec. 12.2 (Scale Invariance)
Pre-class question: 12.3 *Scaling and coarsening*
In-class question: 12.8 *Superconductivity and the renormalization group*
Monday
Read: Chapter 12, Sec. 12.3 (Examples of critical points)
Pre-class question: 12.16 *Period doubling and the onset of chaos*
In-class question: 12.29 *The onset of chaos: lowest order RG*

Exercises

Everyone (4488 and 6562)

12.11 *RG and the central limit theorem: long.*
12.9 *Period doubling and the RG.* (Hints are available in Python and Mathematica: http://pages.physics.cornell.edu/~sethna/StatMech/ComputerExercises.html)
12.35 *Conformal invariance.* (Hints are available in Python and Mathematica: http://pages.physics.cornell.edu/~sethna/StatMech/ComputerExercises.html)

Graduate (6562 only)

12.22 *Activated rates and the saddle-node transition.*
12.28 *Avalanche size distribution.*