C5.3, Statistical Mechanics

General Information

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Contact Information

My name is **Andreas Münch**. My **email address** is: muench ‘at’ maths ‘dot’ ox ‘dot’ ac ‘dot’ uk. You are welcome to write to me.

Structure of the course

The course is planned to have four problem sheets and 16 in-person lectures. The course is based on last year’s video-recorded course, which had 15 lectures, many of which were split into parts. Think of these lectures as chapters with sections. The combined videos for each lecture are typically shorter than an in-person lecture. I therefore expect the material to fill 16 in-person lectures. The slides I use in class are available on the course web page, and are aligned with the HT 2021 video lectures, i.e. there are 15 lectures. For this reason, I refer to these ‘lectures’ in the following

There will be four problem sheets. The mapping of lectures to problem sheets follows the 4 lectures : 1 problem sheet ratio for the first three problem sheets. The last problem sheet is a bit of a mix: It covers material from lectures 13-15, with some catch-up/spill-over from the preceding lectures on Boltzmann’s equation and some questions that will help you refresh your knowledge of the first half of the course.

Lectures 1-8 and 13-15 cover material from Jim Sethna’s book. This book can be bought from OUP, read online via the Reading List linked on the course web page, but there is also a free online (living document) version available on Jim Sethna’s web page:

https://sethna.lassp.cornell.edu/StatMech/EntropyOrderParametersComplexity20.pdf

You WILL need this book as the problems on the problem sheets directly refer to questions in this book, so **please download your copy of Jim Sethna’s book at the beginning of term.**

Lectures 9-12 are covered in Andrew Fowler’s lecture notes, which I will post on the course material web page as well.

List of Videos (from HT 2021)

Lecture 1
Lecture 2
Lecture 3, part 1, part 2
Lecture 4, part 1, part 2
Lecture 5, part 1, part 2
Lecture 6
Lecture 7, part 1, part 2
Lecture 8, part 1, part 2, part 3, part 4

Lecture 9, part 1, part 2
Lecture 10, part 1, part 2
Lecture 11, part 1, part 2.1+2.2, part 2.3+2.4
Lecture 12
Lecture 13
Lecture 14
Lecture 15, part 1, part 2