Lectures on Kinetic Theory and Magnetohydrodynamics of Plasmas

(Oxford MMathPhys/MSc in Mathematical and Theoretical Physics)

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These are the notes for my lectures on Ordinary Differential Equations for 1st-year undergraduate physicists, taught in 2018-22 as part of Paper CP3 at Oxford. They also include lectures on Normal Modes (part of Paper CP4), taught since 2021. I will be grateful for any feedback from students, tutors, or (critical) sympathizers. The latest, up-to-date version of this file is available at

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Below I give references to some relevant bits of various books and online lecture notes. Having access to these materials is not essential for being able to follow these lectures, but reading (these or other) books above and beyond your lecturer's notes is essential for you to be able to claim that you have received an education.

CONTENTS

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

1. The Language of the Game

1.1. *What is an ODE?*

1.2. *Integral Curves and the Cauchy problems*

1.2.1. *First Subsubsec*

1.3. *Existence and uniqueness*

2. Another Section

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First Uniquesness Theorem. a fat cat just a fat cat to be a fat cat just eat like a fat cat

3. Yet Another Section

Problem 12.2. A function fat kill a cat to be fat

Proof. It begins with a knife to kill a cat ∎

Proposition 12.2.4. Shitto a schizo frenzy

4. Final Section

Example 4.1 HEllo con dog

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