



# Outline of the masterclass in plasma physics

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# Spoiler of tomorrow's lecture

- What is plasma?
  - Occurrence and applications
  - Criteria for plasmas
- A few key concepts
  - Debye length
  - Plasma oscillations
  - Gyrofrequency
  - Alfvén waves

# The masterclass will build on the introductory concepts to formulate two properties of plasmas with overarching implications to fusion

1. The classical model of electrical plasma resistivity
    - unlike in solids, in plasmas the resistivity is inversely proportional to its temperature → imposes limitations on heating
  2. An intuitive derivation of the frozen-in flux theorem
    - electrically conducting ideal fluids and embedded magnetic fields are constrained to move together → important to describe plasma instabilities.
- The presentation will be simple – no previous knowledge on the subject will be assumed.